



**London 2012 – Safest Games Ever?**

# **CBRNE Newsletter Terrorism**

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**EXPLOSIVE NEWS**



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## Detecting suicide bombers from a safe distance

Source: <http://www.homelandsecuritynewswire.com/dr20120504-detecting-suicide-bombers-from-a-safe-distance>

Suicide bombings have now spread to Syria; a Florida company produces equipment designed to aid in the detection of a suicide bomber at standoff distances, before a terrorist can reach his intended target

In a recent incident of a suspected suicide bomb plot, Israeli Defense Forces (IDF) captured a Palestinian with two explosive devices near a West Bank roadblock. The bombs were detonated at a controlled destination, and the terror suspect is being held



Thermal Matrix produces equipment designed to aid in the detection of a suicide bomber at standoff distances, before a terrorist can reach his intended target. The company says the technology can detect plastic, liquid, powder, and gel explosives, which may not be seen when hidden beneath clothing, nor detected by metal detectors at entry check points.

The company's ACT Threat Detection System integrates with infrared sensors, aiding in concealed object threat detection



for questioning.

That incident comes following a deadly suicide bombing in Syria that claimed at least nine lives in Damascus. An Islamic group identifying itself as al-Nusra Front claimed responsibility, saying its operative detonated his explosive in the midst of 150 Syrian security forces.

"We are fortunate the IDF was able to apprehend the suspected West Bank terrorist before tragedy could occur," said Richard Salem, CEO of Tampa, Florida-based threat detection maker Thermal Matrix International. "But as we have seen in Syria, not all potential threats are being discovered in time."

through target identification, target tracking, and color analysis of potential PBIEDs (person-borne improvised explosive devices). The company notes that the system also displays and controls the imagery of multiple sensors, adding the ability to record, review, and archive scenes at a safe distance.

The two most recent suicide bomb incidents are not isolated. In the West Bank alone, two Palestinians with four pipe bombs were arrested one week ago. Earlier in April another terrorist was detained, found to be in possession of seven improvised explosive devices.



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Officials were quoted as saying they suspected the Palestinian planned to attack Israeli civilians or soldiers during Passover.

“The threat situations we have seen over the past couple days are exactly the types of situations our technology can help defuse,” Salem said. “We expect these attempts to continue until we can demonstrate to terrorists

that we have advance warning technology capable of stopping them.”

The company also notes that although the system aids in detecting what is hidden beneath clothing, it is not an x-ray. This means there are no invasion of privacy concerns since the technology does not depict any anatomical features.

### Concerns raised about body-cavities explosives attack on aviation

Source: <http://www.homelandsecuritynewswire.com/dr20120502-concerns-raised-about-body-cavities-explosives-attack-on-aviation>

Security services raised the possibility that al Qaeda affiliates may decide to mark the anniversary of the killing of Osama Bin Laden by sending suicide bombers with explosives inside their bodies to bring down airplanes; these experts point to an August 2009 attempt by a suicide body-bomber on a Saudi prince, and to the fact that U.S. drones earlier this year killed a Yemeni doctor who had devised medical procedures which could be used surgically to plant explosive devices in humans



Prince Muhammad bin Nayef, target of a body-cavity bomber // Source: tvnz.co.nz

In August 2009, a 23-year old suicide bomber named Abdullah Hassan Tali' al-Asiri was sent on a first-of-its kind suicide mission: his older brother, Ibrahim Hassan al-Asiri, the chief bomb maker of al Qaeda in the Arabian Peninsula (AQAP), al Qaeda's Yemeni affiliate, placed explosives inside his younger brother's rectal cavity, then sent him to meet with Prince Mohammed bin Nayef, who was in charge of the Saudi government's antiterrorist campaign. The two al-Asiri brothers were known to the Saudi intelligence services as members of AQAP, and the younger al-Asiri used that fact to gain access to the prince: he turned himself

in to Saudi authorities, but insisted that he had information about terror plot which he willing to share only with Prince bin Nayef. The Saudis bought his story, and took him to a meeting with the prince.

The plot almost worked – except that the explosive device in al-Asiri's body exploded prematurely, when he was still some distance away from the prince. Al-Asiri was killed on the spot, and the prince suffered only light injuries to his hand. Three body guards were also injured lightly.

The story of al-Asiri's exploit is now being studied again by security services, some members of which raised the possibility the terrorist would emulate this inside-the-body method to bring down planes during the anniversary month of the killing of Osama Bin Laden.

ABC News quotes Dr. Mark Melrose, a New York emergency medicine specialist, to say that there is plenty of room in the stomach area of the body for surgically implanted explosives.

**“The surgeon would open the abdominal cavity (see photo below) and literally implant the explosive device in amongst the internal organs,”** explained Melrose.

msnbc reports that U.S. officials acknowledged that earlier this year, a missile fired by a CIA-operated drone killed a Yemeni doctor who had devised medical procedures which could be used surgically to plant explosive devices in humans. The older al-Asiri himself was also a target of a drone attack, but escaped.

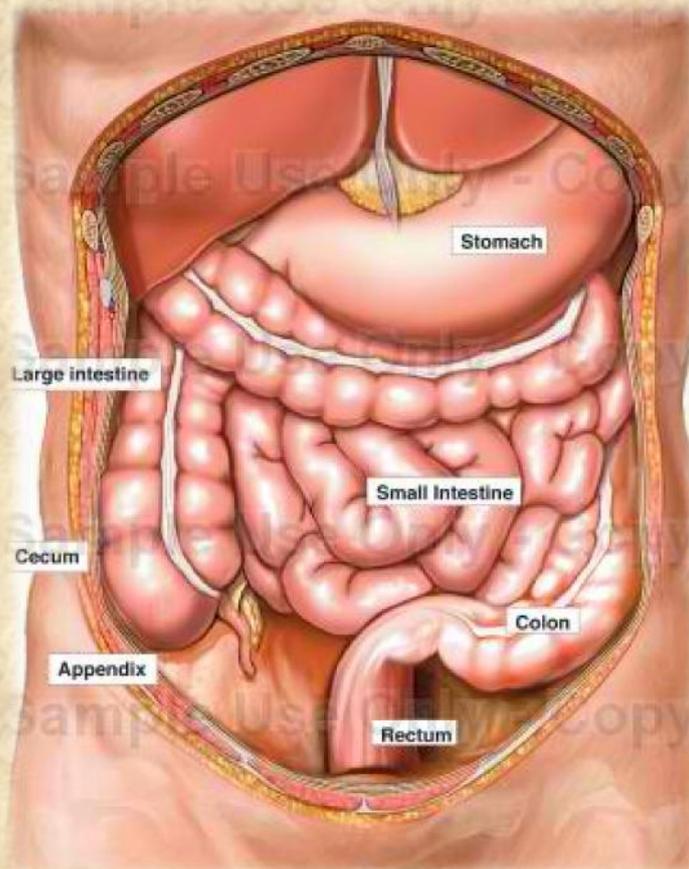
John Pistole, administrator of the Transportation Security Administration (TSA), told ABC News in 2011: “We are treating the information seriously.”

Security experts note that the older Asiri is a clever and resourceful bomb



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maker. Among other schemes, he is also



outside his body, as would be the case if he placed the explosives in his underwear, he explosion would have been much more powerful, causing much more damage and death.

DHS spokesman Peter Boogaard released a statement Monday evening saying, "We have no indication of any specific, credible threats or plots against the U.S. tied to the one-year anniversary of bin Laden's death."

Explosives experts doubt a body-cavity bomb is a serious threat to aviation. They note that it is not likely that an individual can carry in his body explosives which would create an explosion much larger than that created by a hand grenade. As quite a few stories of heroic soldiers who threw themselves on live grenades in order to save their comrades show, the human body can effectively absorb most of the effect of an exploding grenade.

Conceivably, liquid explosives would be a better method of

responsible for the "underwear bomb" with which Umar Farouk Abdulmutallab tried to take down Northwest flight 253 on Christmas 2009, and for the printer bombs in the failed cargo bomb plot of 2010.

Note that some reports from Saudi Arabia about the younger al-Asiri said that the bomb he exploded was not carried inside his body, but was rather sewn into his underwear in a manner similar to Abdulmutallab's bomb. Explosive experts doubt this version of events, saying that if al-Asiri had carried the explosives

inside-the-body explosion: the suicide bomber may drink a large quantity of liquid main-charge explosives (say, peroxide concentrate) and then, when he is in the proximity of the target, he could swallow a detonating device to trigger an explosion. The quantity of liquid explosives the digestive tract can accommodate is much larger than the explosives that can be stuffed into the rectal cavity – but the toxicity of the peroxide would kill the bomber within minutes of swallowing the liquids, making it impossible for him to carry out the mission.

**Kansas City to deploy ShotSpotter technology**

Source: <http://www.homelandsecuritynewswire.com/srlet20120501-kansas-city-to-deploy-shotspotter-technology>

Kansas City police and the Kansas City Area Transportation Authority have agreed jointly to deploy the Shot Spotter, an acoustic technology that provides detailed information on gunshots fired

Rapid police response to a shots-fired report can often make the difference in saving a

shooting victim's life, or in capturing the shooter.

With that end in mind, Kansas City police and the Kansas City Area Transportation Authority have agreed jointly to deploy the Shot Spotter, an acoustic technology that provides detailed information on gunshots fired.



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Contributing to the problem Kansas City police face is that gunshots are so frequent that only about 20 percent of shots-fired reports are

The information is fed to the operations center of California-based SST Inc., the company which developed and markets the system. SST



even called in.

Dozens of cities around the world have deployed the ShotSpotter system, but the Kansas City effort is believed to be the first

acoustic experts assess the information to determine whether a sound's source is something like a car backfiring or fireworks. When the sound is verified as a probable



joint project by a police department and transit officials.

Kansas City police chief Darryl Forte discussed the proposal with the Board of Police Commissioners, which approved the project. The following day, The KCATA approved the plans, funding it for five years with \$720,000 left over from a previous ATA project. Although the funding is for five years, the system offers flexibility for future deployments.

The system uses multiple sensors to pick up the sound of gunfire and pinpoint its location.

gunshot, a report is passed to that area's 911 operators or even directly to officers in patrol cars. According to SST, officers receive a shots-fired notification within twenty-five seconds of the event.

The exact number of sensors to be deployed is yet to be determined, and their location is considered as classified, so as not to alert potential shooters.

Police, transit officials, and SST will work together to determine the best placement for the sensors.



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### 7/7 bombers planned attack on Bank of England

Source: <http://www.telegraph.co.uk/news/uknews/terrorism-in-the-uk/9237355/77-bombers-planned-attack-on-Bank-of-England.html>

According to a top secret first-hand account from the al-Qaeda commander behind the attacks, the original plan was to drive a truck bomb into a financial target.

They eventually opted to detonate rucksack bombs on the underground, killing 52 people. Tony Blair was hosting the G8 summit at Gleneagles in Scotland at the time and flew back to London after the attacks.



Rashid Rauf, an extremist from Birmingham who was killed by a missile from an unmanned drone in 2008 Photo: AP

The account is contained in a secret document prepared for al-Qaeda by the commander and disclosed to the Daily Telegraph by sources with knowledge of the contents.

The document was discovered on a memory stick hidden in the underwear of a Muslim former Austrian soldier called Maqsood who was arrested in Berlin on May 16 last year after returning from the tribal areas of Pakistan via Hungary.

The file about the 7/7 attacks was called "Lessons Learned from Previous Operations". It had been hidden among video files while others had the names of pornographic films and pop songs.

The commander also reveals that the July 21 bombers only failed in their mission two weeks after the original attacks because they had lost touch with their al-Qaeda handlers and had not realised they had the wrong bomb-making recipe.

The 7/7 bombers realised their chemical mixture, distilled in a rented flat in Hyde Park in Leeds, was not strong enough, and contacted their commanders in Pakistan but their counterparts in a council flat in North London, did not get back in touch, according to the account.

The men had different trainers in Pakistan, one of them a Syrian, which explains why they used slightly different recipes.

According to the account the commander was not even sure that the failed 21/7 attacks were launched by their sleeper cell.

He also gives details about a third plot to blow up planes travelling across the Atlantic to North America in 2006 using bombs hidden in soft drinks bottles.

The commander disclosed that al-Qaeda attempted to smuggle bomb-making

chemicals into Britain to be sure of getting the recipe right but later abandoned the plans.

The account was written by Rashid Rauf, an extremist from Birmingham who was killed by a missile from an unmanned drone in 2008.

It is the first confirmation that Rauf was behind the 7/7 attacks as well as those of 21/7 and the trans-Atlantic airlines liquid bomb plot.

He went on to try and launch attacks against Easter shoppers in Manchester and against the New York Metro.

The document haul also included a document entitled "future work" by al-Qaeda planner Younis Mohammad al-Mauretani that outlined ideas for terrorist attacks in the West.

It talked about launching a large number of small attacks to create panic in Western society and push governments into using more repressive measures against Muslims.

But it also suggested a second spectacular on the scale of 9/11 in order to prove al-Qaeda's capability.

It said more attention should be given to attacking maritime interests and suggested hijacking a cruise ship to



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take hostages as a bargaining chip for the release of prisoners.

Foreign fighters should be trained quickly and sent back to the West, while those already known to the security services should provide a distraction, it added.

Another file is thought to have been written by the arrested man or his colleague, Yusuf, who was arrested in Berlin.

It includes advice on traveling abroad for training and recommends using fake passports,

different cars, pretending to be a criminal if their behaviour raises suspicion.

It also explains how to carry out kidnappings and says the prisoner should be dressed in an orange jumpsuit similar to the ones worn by the prisoners in Guantánamo Bay and killed while a camera is recording the execution.

Among the haul was one video file containing 142 hidden documents including terrorist training manuals in English, German and Arabic.

### Northern Ireland police find two car bombs

Source: <http://www.guardian.co.uk/uk/2012/apr/28/northern-ireland-police-car-bombs>

Police in Northern Ireland have found a bomb planted by dissident republicans bigger than the device that caused the Omagh massacre.

**Officers discovered the 270kg (600lb) bomb on Thursday in the Fathom Line area of the border town of Newry.**

The Police Service of Northern Ireland (PSNI) said the device was meant to kill members of a

Chief Superintendent Alasdair Robinson said the bomb could have caused death and massive destruction.

Danny Kennedy, an Ulster Unionist member of the Northern Ireland assembly said the size of the bomb suggested that dissident republicans were intent on killing police officers.

He said: "It had the potential to cause lethal



passing patrol.

Like the Omagh bomb, which killed 29 people in the single biggest atrocity of the Troubles, the device is believed to have been put together by former Provisional IRA "engineers" from south Armagh who subsequently broke from the organisation to form the Real IRA.

It was left inside a van near Newry canal on Thursday evening causing a 24-hour security alert.

damage. A 600lb device at the roadside waiting for a police patrol. It is just unthinkable.

"Clearly this was an attempt to lure a police patrol into that area, with potentially lethal consequences."

Dissident republicans were also thought to have mistakenly left a bomb underneath a civilian's car in the Ballygomartin Road area of north Belfast.



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Security sources said the republican terror group Óglaigh na hÉireann placed the bomb underneath the car because it had once belonged to a retired policeman.

Up to 70 homes in the loyalist district had to be evacuated while army bomb disposal officers defused the device.

Chief Inspector Ian Campbell said: "Those responsible for this have shown callous disregard for members of the public.

"The finger of suspicion points towards dissident republican terrorists and I appeal to anyone with information to come forward to police."

In follow-up searches in the nearby republican Ardoyne area police later recovered a number of guns and ammunition which the PSNI linked to republican terror groups operating in the city.

Chief Superintendent George Clarke, district commander for north and west Belfast, said the police had succeeded in combating activity by the dissident groups.

"The actions of police have undoubtedly thwarted the attempts of criminals to inflict death, injury and misery on the community of north Belfast," he said. "Police are determined to protect communities from these threats."

**Plot to bomb U.S.-bound plane thwarted in Yemen**

Source: <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2012/05/07/MNFR1OEK2G.DTL>

The CIA, working closely with foreign partners, thwarted a plot by the branch of al Qaeda in Yemen to smuggle an experimental bomb aboard an airliner bound for the United States, intelligence officials said Monday.



The intelligence services detected the scheme as it took

shape in mid-April, officials said, and the explosive device was seized about a week ago before it could be deployed. A suicide bomber had been chosen to wear the device under his clothes, but no airplane was ever in danger, the officials said.

It appeared that al Qaeda leaders had dispatched the would-be suicide bomber from Yemen with instructions to board a flight to the United States, but that he had been stopped before reaching an airport. Rep. Peter King, R-N.Y., chairman of the Homeland Security Committee, said counterterrorism officials had said of the bomber: "We don't have to worry about him anymore." He is alive, officials said, but they would not say specifically whether he was in foreign custody or where he was being held.

But the disclosure was a worrisome sign that al Qaeda in the Arabian Peninsula remains determined to attack the United States even after a CIA drone strike in Yemen in September killed two of its operatives who were U.S. citizens, Anwar al-Awlaki and Samir Khan. U.S.

officials said the group had established new training camps after seizing territory in recent months as a result of the upheaval from the Arab Spring.

Officials said they believed the new device was



the work of the group's skilled bomb-maker, Ibrahim Hassan al-Asiri, who has long been a



target of U.S. counterterrorism efforts. Al-Asiri is also believed to have designed the explosives used in two



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previous attempts to take down airliners bound for the United States.

The plot was disclosed a day after a U.S. drone strike in Yemen killed Fahd Mohammed Ahmed al-Quso, who was wanted for the bombing of the USS Cole destroyer ship in Yemen in 2000 and had replaced al-Awlaki as the external operations chief for the al Qaeda branch. Though the device was seized close to the anniversary of the killing of Osama bin Laden, the al Qaeda founder, officials said they had picked up no intelligence suggesting that the

plot had been timed to the May 2 anniversary or motivated by revenge.

Officials would not explain the delay in revealing the plot, saying that discussing the case in too much detail could endanger counterterrorism operations.

Sen. Dianne Feinstein, D-Calif., who heads the Senate Intelligence Committee, was briefed on the plot Monday and said the bomb was "a new design and very difficult to detect by magnetometer," the conventional type of metal detector still used in most world airports.

### Double agent again exposed al Qaeda's use of undetectable PETN explosive

Source: <http://www.debka.com/article/21987/>

The White House and US intelligence agencies are furious over the French News Agency AFP's revelation Wednesday, May 9, that a Saudi double agent working with the US led to the discovery of an upgraded underwear bomb for blowing up US jets, and also the US drone air strike Sunday, May 6, in Yemen which killed Fahd al-Quso, who was sought in connection with the blowing up of the USS Cole in October 2000.

When the improved underwear bombs were ready, one or more was handed to the Saudi double agent with instructions from Al Qaeda in the Arabian Peninsula AQAP to return to the kingdom, board a US-bound passenger jet and blow it up en route to America.

Instead, he handed the prize to Saudi intelligence which passed it on US agencies. The device was more sophisticated than the original underpants bomb which Nigerian student Umar Farouk Abdulmutallab failed to detonate aboard an American airliner bound for Detroit on Christmas 2009. It had no metal parts for alerting airport security detectors and contained the PETN powder explosive that is undetectable by airport X-ray machines. The FBI is testing the device now, but officials question whether it would have been detected without an intelligence tip-off which most likely came from Saudis, according to US officials.

The Saudi mole is reported to have succeeded in infiltrating the AQAP cell in Yemen as a volunteer suicide bomber and reached close to its bomb-maker Ibrahim Hassan al-Asiri, the Saudi who also designed the bomb that failed to explode over Detroit and the devices planted in ink cartridges put aboard US-bound cargo

planes in 2012 in Britain which too failed to detonate.

The entire episode was kept under wraps until Monday, May 7, when the White House disclosed that the CIA had foiled a plot to bring down a US-bound airliner by means of an improved underwear device close to the May 2 anniversary of Osama bin Laden's death. The statement stressed that there had never been any real danger to an American or an allied flight.

debkafile's intelligence and counterterrorism sources say that the way the story was released and Washington's dismay over subsequent revelations **raise three intelligence-related issues:**

1. Why did the White House release the first, incomplete story if it was so important to keep the highly sensitive US-Saudi penetration of a key Al Qaeda cell in Yemen veiled in secrecy? And why state that the attack on an American jet was foiled when it had not gone beyond the planning stage?

2. US intelligence rightly feared that this publicity would compromise other Saudi double agents, present and future. So why was the White House permitted to go public even with an abbreviated account?

The disclosure occurred shortly after security was proved to have been seriously wanting for President Barack Obama's May 2 trip to Kabul to mark the anniversary of Bin Laden's death and sign a long-term military and strategic cooperation agreement with Afghan President Hamid Karzai. His precise timetable had been leaked in advance – no one knows



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how – so that less than two hours after the US President flew out of Kabul, insurgent suicide bombers and gunmen launched coordinated attacks on the Afghan capital, demonstrating the real value of the agreement just signed.

Did the White House and the CIA release the underwear bomb affair to underscore a second feat against al Qaeda and therefore a reminder of the Obama administration's success in liquidating its master in Abbotabad? The answer is most probably affirmative.

3. As for the follow-up leak which has so incensed Washington, that may have indeed been planted by the Saudi intelligence agency itself, or some Western or Arab clandestine service which worked with the Saudis and the Americans in running the double, or perhaps triple, agent. Because the upgraded device could only have been stopped with the help of prior intelligence, the damage caused by exposing sources of information is inestimable. Running double agents or moles on sensitive undercover missions is extremely tricky and hazardous. None of the parties involved,

including the double agent knows everything going on in his vicinity, least of all about the strings being pulled outside his purview.

Take, for example, the upgraded underwear bomb. Who really developed it? From the limited information available it does not seem likely that the al Qaeda bomb expert Ibrahim Hassan al-Asiri was responsible. It is not beyond the bounds of possibility, that the advanced technology was developed by American or Saudi intelligence and given to the double agent to offer the Al Qaeda cell in Yemen to win its trust as a suicide bomber volunteer. It would also have given him the chance to evaluate how far the cell's bomb-making capacity had advanced.

The way that these revelations spilled out indicates that not all parts of the US-Saudi collaboration running the agent had agreed on a policy of publicity. Ideally, nothing at all about the operation should have been revealed in the first place. But since the cat was let out of the bag, it can't be put back.

### Are al Qaeda's Airline Bombing Attempts Becoming More Sophisticated?

Source: <http://www.scientificamerican.com/article.cfm?id=al-qaeda-underwear-bomb-2012&print=true>

The CIA, working with counterparts in the Middle East, earlier this week halted the latest al Qaeda terrorist plot to bomb aircraft bound



for the U.S. The planned attack, which would have come from explosives worn under a passenger's clothing, is reminiscent of the so-called underwear bomb worn by an al Qaeda operative in the failed attempt by Umar Farouk Abdulmutallab to bring down a Detroit-bound passenger airliner on Christmas Day 2009. The latest underwear bomb found through the covert CIA operation is thought to be the work of Ibrahim Hassan al Asiri, who designed the original device.

Although the plot was disrupted before a particular airline was targeted and tickets were purchased, al Qaeda's continued attempts to attack the U.S. speak to the organization's persistence and willingness to refine specific approaches to killing. Unlike Abdulmutallab's bomb, the new device contained lead azide, an explosive often used as a detonator. If the new underwear bomb had been used, the bomber would have ignited the lead azide, which would have triggered a more powerful explosive, possibly military-grade explosive pentaerythritol tetranitrate (PETN).

Lead azide and PETN were key components in a 2010 plan to detonate two bombs sent from Yemen and bound for Chicago—one in a cargo aircraft and the other in the cargo hold of a passenger aircraft. In that plot, al-Qaeda hid bombs in printer cartridges, allowing them to slip past cargo handlers and airport screeners. Both bombs contained far more explosive material than the 80 grams of PETN that Abdulmutallab smuggled onto his Northwest Airlines flight.



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With the latest device, al Asiri appears to have been able to improve on the underwear bomb supplied to Abdulmutallab, says Joan Neuhaus Schaan, a fellow in homeland security and terrorism for Rice University's James A. Baker III Institute for Public Policy. This is just the latest in the "very serious cat-and-mouse game" that terrorists play with those trying to stop them.

"In this particular case it's interesting to see the way the terrorists were trying to use resistance to [Transportation Security Administration] procedures as part of an attack," Schaan says. After Abdulmutallab's attempt a few years ago, the TSA put in place new procedures and technologies to prevent someone else from smuggling explosives on board an aircraft in their clothing. Shortly thereafter the general public took offense to these new security methods, and the TSA was required to rethink its policy, she adds.

The joint CIA–Saudi intelligence operation to stop this latest attack, orchestrated by Yemen-based Sunni terrorist group al Qaeda in the Arabian Peninsula (AQAP), coincides with several other significant terrorism-related developments of the past week. In addition to the recent one-year anniversary of former al Qaeda leader Osama bin Laden's assassination by U.S. military forces in Pakistan, a CIA drone strike earlier this week in Yemen killed AQAP head of operations, Fahd Mohammad Ahmed al Quso, an alleged planner of the 2000 terrorist attack on the *USS Cole*.

On Monday al Qaeda released a hostage tape featuring former American Peace Corps and U.S. Agency for International Development (USAID) official Warren Weinstein, who was kidnapped last August in Pakistan. Meanwhile, the military trial of accused 9/11 planner Khalid Sheik Mohammed and four others has begun in Guantanamo Bay, Cuba.

*Scientific American* spoke with Schaan about al Qaeda's continued attempts to take down airliners traveling to the U.S., the terrorist organization's focus on exploiting cultural norms to reach their targets and the most successful approaches to stopping terrorist plots.

**[An edited transcript of the interview follows.]**

**How significant was the discovery of this**

**plot to blow up a U.S.-bound airliner with an improved version of an underwear bomb?**

It further illustrates the fact that even though we've killed Osama bin Laden, Anwar al Awlaki [a key AQAP operative who died in a September 2011 drone air strike] and several other al Qaeda leaders, we have not stopped the threat they pose.

**Why would al Qaeda be trying to develop a new underwear bomb, after the first attempt failed?**

An underpants bomb is worn under a person's clothes, just like a diaper. The people behind these plots understand not only the TSA's security procedures but how they are tolerated—or in this case not tolerated—by travelers in the Western world, and the terrorists used this knowledge to design their attacks. The plotters might not have gone back to an underpants bomb if the TSA had continued with the more intensive screening procedures it had in place.

**Although Abdulmutallab was stopped, how was he able to get as far as he did with his planned attack?**

Abdulmutallab began his journey in Lagos, Nigeria, on December 24, and the initial security screening would have occurred there. The Lagos airport has had a well-known reputation for lax security. PETN, [the explosive] which Abdulmutallab tried to use, is widely available. It can easily be detected if checked by dog, swab or "puffer" machine, but it's hard to detect in a sealed container. In addition, passengers are most often checked only by magnetometers. In the case of Abdulmutallab, he attempted to detonate the device by injecting a chemical into it after he had gotten onto the airplane, but the attempt was unsuccessful.

**The new bomb supposedly contained no metal. Does this mean it would have passed through airport detectors unnoticed?**

Yes, that would be the case with a magnetometer, if the bomb did not have any metal wiring, which tends to be picked up. Airport security screeners also swab people, luggage and handbags, looking for a variety of substances, including drugs and explosive chemicals. Although they likely wouldn't swab someone's underwear, the chemical might have



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gotten on that person's luggage and clothes without them realizing it. Chemical analysis may have been a way to detect this type of explosive but airport screeners don't swab every bag.

### Would backscatter x-ray machines or millimeter wave scanners deployed at many airports have been effective in spotting the new underwear bomb?

Those scanners are looking for anomalies on a person's body, in particular something that is hard or dense. It depends on the density of the bomb materials, what the ingredients are and the form they took.

[Backscatter picks up the radiation bounced back from the passenger's body and any objects the person may be concealing. Elements such as carbon, oxygen, hydrogen and nitrogen—common ingredients of explosives—create a strong scattering effect visible in images that operators monitor on a screen yet are discernible from the organic molecules in the human body. Millimeter waves, which are shorter than microwaves but longer than infrared, create a revealing picture that can highlight items and determine the precise chemical makeup of an object. Although backscatter and millimeter wave scanners might have given screeners cause to be suspicious of an underwear bomb, neither are used in all airports, and passengers concerned about exposure to radiation can often opt to instead be frisked by security personnel.]

**In addition to the original underwear bomb**

### and the 2010 attempts to pack explosives as cargo on aircraft, what other tactics has al Qaeda tried in their search for effective methods of attack?

[Ibrahim Hassan] al Asiri had his own brother place PETN inside his colon and then told him to surrender to the counter-terrorism chief in person and request entry into Saudi Arabia's terrorist rehabilitation program. In August 2009

Abdullah Hassan al Asiri tried to assassinate Saudi Arabia Interior Minister Prince Muhammed Nayef bin Abdul Aziz al Saud, although the PETN explosion ended up killing him and only slightly injuring al Saud. Ironically, al Saud was protected from the full brunt of the blast by al Asiri's body. Less than half a year later, Abdulmutallab tried the first underpants bomb.

### TURBAN BOMB

September 2011 - An assassin with explosives hidden in his turban was ushered into the home of the head of Afghanistan's peace process on Tuesday, embraced him and then exploded the bomb, killing him and dealing a potentially devastating blow to the effort to reconcile with the Taliban and end 10 years of war.

The assassination of Burhanuddin Rabbani, the leader of Afghanistan's High Peace Council and a former president, on the heels of a carefully planned attack on the American Embassy a week ago, underscored the fierce opposition of those who want to shatter the country's tenuous stability and thwart its tentative steps toward peace.

In each case, the bomb-makers take into account cultural norms. For example, the Taliban developed a turban bomb, which was employed to assassinate Burhanuddin Rabbani, a former Afghan president and head of the High Peace Council. The tactic was used because Afghans are reluctant to request the removal of a turban.

### What has been the most effective means of disrupting terrorism attacks?

As with bombs that were being sent from Yemen to Chicago as cargo, this latest plot was discovered using human intelligence rather than screening procedures and technologies. These plans were disrupted because of proactive mechanisms put in place to stop terrorism rather than defensive approaches such as screening.

**NOTE:** Lead azide, also known as lead(II) azide, is a chemical compound. Its chemical formula is  $Pb(N_3)_2$ . It contains lead and azide ions. It contains lead in its +2 oxidation state. Lead azide is an explosive. Most other azides just burn rapidly. It is used as a detonator to detonate other explosives. It is made by reacting lead(II) nitrate and sodium azide. It can be destroyed by sodium dichromate. It can react with other metals such as copper to make even more sensitive azide explosives. It does not become less of an explosive when wet. It will explode if it is dropped 6 inches (15 cm).



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### Terror's Technician: al Qaeda bomb-maker is US' worst nightmare

Source:<http://www.hindustantimes.com/News-Feed/Chunk-HT-UI-Common-DontMiss/Terror-s-Technician-al-Qaeda-bomb-maker-is-US-worst-nightmare/Article1-853280.aspx>

The FBI has fingerprint and forensic evidence linking al Qaeda's top bomb maker in Yemen, Ibrahim Hassan al-Asiri, to both, the 2009 Christmas Day airline attack and the nearly successful attack on cargo planes in 2010.

Ibrahim Hassan al-Asiri, who runs a clandestine bomb factory in Yemen, has built a reputation as al Qaeda's bomb-making savant one potential near miss at a time: explosive-rigged underwear aboard a Christmas flight to the US in 2009, printers fitted with high-grade explosives less than a year later, and now possibly a metal-free device that could avoid airport detectors, causing ripples in American law enforcement agencies.

Asiri, now called 'Evil Genius', by US intelligence agencies, has emerged as CIA's worst nightmare since the slaying of terror chief Osama bin Laden and is now a major focus of America's anti-terrorism efforts, CNN reported quoting US intelligence officials.

Before those failed attempts, he staged an even more audacious attack: Turning his own brother into a suicide bomber in a mission that injured Saudi Arabia's top counterterrorism official and was later decried by the US State Department for its "brutality, novelty and sophistication."

"You tyrants ... your bastions and fortifications will not prevent us from reaching you," said an al Qaeda statement claiming responsibility for the August 2009 blast in Jiddah.

This appears to be the essence of al-Asiri's plots as one of the leaders of the Yemen-based al Qaeda in the Arabian Peninsula, or AQAP. A pattern has emerged of explosive expertise channeled into designs using a smuggler-style stealth and innovation to try to outwit security forces and spy agencies.

US authorities on Tuesday probed the latest device believed to be the work of the Saudi-born al-Asiri or one of his students after it was uncovered in a CIA operation.

It was described as a refinement of the underwear bomb that failed to detonate aboard a jetliner over Detroit on December 25, 2009. The twist this time was an absence of metal,

which could have made the device undetectable by conventional airport scanners.

The primary charge in the latest device was high-grade military explosive that the Times, quoting an official, said "undoubtedly would have brought down an aircraft."

The other change in the metal-free device was that it could detonate in two ways. An improvement, to ensure that a repeat failure like the one to blow-up a jet over Detroit does not occur again.

"It was a threat from a standpoint of the design," said John Brennan, US President Barack Obama's counterterrorism adviser.

#### Who is al-Asiri?

Al-Asiri, 30, was a student of Chemistry in Riyadh. He tried to join the al Qaeda in Iraq to fight off the 2003 US invasion but he was arrested by Saudi officials when trying to cross the border. He arrived in Yemen in



2006 after being jailed by Saudi officials in crackdowns against Islamic militants.

"They put me in prison and I began to see the depths of (the Saudi) servitude to the Crusaders and their hatred for the true worshippers of God, from the way they interrogated me," he is quoted as saying in the September 2009 issue of Sada al-Malahem, or Voice of Battles, an Arabic-language online magazine put out by al Qaeda's branch in Yemen.

His younger brother, Abdullah, also made the trek to Yemen as they turned their backs on their father, a four-decade veteran of the Saudi military.

In Yemen's rugged northern mountains, they met with fugitive Yemeni militant Nasser al-Wahishi, a former aide to Osama bin Laden, and became the nucleus of the new al Qaeda affiliate,



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said the magazine account, which could not be independently confirmed.

They later brought in US-born cleric Anwar al-Awlaki as a powerful propaganda voice in the West. Al-Awlaki was killed in a US airstrike last September.

US intelligence officials at first believed al-Asiri also was killed in the attack, but the suspicions were proven wrong several weeks later.

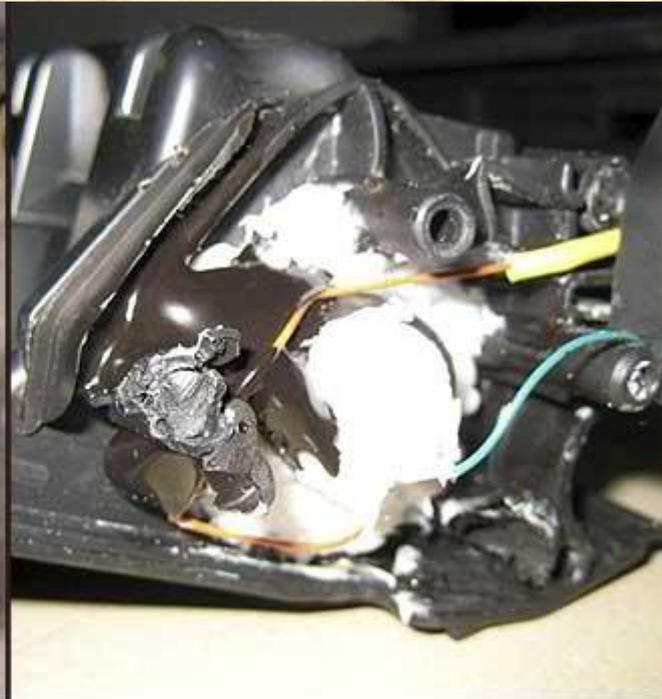
Prince Mohammed was slightly injured in the suicide blast. But for al Asiri, it was near success. Never before had they got so close to killing a royal family member.

The bomb used, was an industrial explosive known as PETN, or pentaerythritol tetranitrate, the same material used in 2001 by convicted shoe bomber Richard Reid when he tried to destroy a trans-Atlantic flight.

It would become a signature element of al-



The underwear with a packet of the high explosive chemical called PETN, that was smuggled onto a flight. (AFP)



The improvised bomb hidden in a laser printer toner cartridge, as part of the 2010 cargo plane bomb plot. (AP)

**Attacking Saudi:**

In August 2009, al-Asiri was linked to an elaborate scheme to strike at the heart of Saudi's intelligence services. His first experiment was with his brother, Abdullah, who posed as a disenchanted militant wishing to surrender to high-ranking officials in his homeland. A Saudi royal jet was dispatched. To avoid detection, the explosive- laden with 100 grams of PETN or pentaerythritol tetranitrate which was reportedly hidden in his rectum or held between his legs.

Once inside the Saudi intelligence offices in the Red Sea port of Jiddah, he detonated the device near his target: deputy interior minister Prince Mohammed bin Nayef - whose father Prince Nayef ran the ministry and would later become the kingdom's heir to the throne.



Asiri's plots, according to intelligence analysts.

**Failed bombings:**

After the failed Christmas 2009 bombing, investigators pulled al-Asiri's fingerprint off the bomb hidden in the underwear of the Nigerian-born suspect, Umar Farouk Abdulmutallab, aboard the Northwest Airlines flight.

The design of the bomb was innovative, US counterterrorism officials were quoted by CNN.

The main PETN explosive was located in a specially sewn pouch in Abdulmutallab's underwear. The explosive was connected to a detonator.



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A syringe in his underwear, filled with two chemicals: potassium permanganate and ethylene glycol would serve as the initiating device.

As the flight approached Detroit, Abdulmutallab plunged the syringe, mixing the two chemicals and setting them afire. This flame set off the detonator, according to the prosecution. The PETN device, however, failed to detonate. Instead, some of it started burning.

While those on board the Northwest Airlines Flight 253 were lucky, Asiri was undeterred. Within months he designed a device that could be integrated into a printer.

Asiri was linked to the discovery of printer cartridges packed with 400 grams of PETN and sent by international courier with Chicago-area synagogues listed as the destination. Specially trained dogs and even X-ray scanners could not detect the explosive-rigged packages - believed powerful enough to bring down a plane.

"The toner cartridge contains the toner which is carbon-based and that is an organic material. The carbon's molecular structure is close to that of PETN," al Qaeda in the Arabian Peninsula boasted later, reports CNN.

**Asiri, a major threat?**

Al-Asiri became a major focus of America's anti-terrorism efforts. In March 2011, Washington officially designated al-Asiri as a wanted terrorist, calling him the primary bombmaker for AQAP. It also presumably puts

al-Asiri among the chief targets on the US hit list.

Last month, US officials expressed concern that al Qaeda "intends to advance plots along multiple fronts, including renewed efforts to target Western aviation," according to a joint intelligence bulletin circulated from the US Northern Command, the FBI and Homeland Security Department.

While al-Asiri has been dubbed the master bomb-maker of al Qaeda's Yemen franchise, it may be wrong to label him the linchpin of the group's ability to strike with explosives, said Gregory Johnsen, a Yemen expert at Princeton University.

Although US officials touted the disrupted plot as a success, they acknowledged AQAP remained determined to strike and its master bombmaker, al-Asiri, was apparently hard at work seeking to circumvent airport security.

It is al Qaeda's affiliate in Yemen that "we're most worried about, the affiliate we spend the most time on. They're operating in the midst of essentially an insurgency, a multi-polar struggle for the control of Yemen. And that allows them the opportunity to recruit, to fundraise, to plot," say US counterterrorism officials.

"I think it is safe to assume that in the nearly six years that he has been in Yemen, he has trained other individuals to replace him if he were to be killed," Johnsen wrote on his blog on Tuesday. "It is unlikely that Asiri is the only bombmaker AQAP has within its ranks - he is just the only name we know."

**Five al Qaeda leaders most wanted by US:**



**Ayman al-Zawahri** - Egyptian cleric Ayman al-Zawahri took over the organisation, after Osama bin Laden's killing last year by Navy SEALs. Presumed hiding in Pakistan, Zawahri has released a near-record number of propaganda videos since the bin Laden raid, exhorting followers to violence.



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**Abu Yahia al-Libi** - The Libyan militant, as his name implies, is now the group's de facto No. 2 moving up a notch in al Qaeda's hierarchy after the bin Laden raid. A key al Qaeda propagandist whose video appearances outnumber those by leader Zawahri, he escaped a high-security US prison in Bagram, Afghanistan, in 2005.

**Mullah Mohammed Omar** - Leader of the Taliban, Afghan Mullah Omar has sheltered al Qaeda during the Taliban rule and since. Thought to be hiding in Quetta, Pakistan, Omar continues to command the militant forces who work together with al Qaeda, responsible for killing some 1,500 US troops in Afghanistan since 2001.

**Nasser al-Wahishi** - Once Osama bin Laden's aide-de-camp, Wahishi commands Yemeni affiliate al Qaeda in the Arabian Peninsula, or AQAP, the group US counterterrorist officials warn is most capable of launching an attack on US soil. AQAP has established a de facto safe haven in southern Yemen, beating back Yemeni forces that have been consumed with fighting a tribal and political revolt in the wake of the Arab Spring.

**Ibrahim Hassan al-Asiri** - Chief bombmaker for al Qaeda in the Arabian Peninsula, responsible for building the underwear bomb used to try to bring down a Detroit-bound jetliner on Christmas 2009 and the printer-cartridge bombs intercepted in US-bound cargo planes a year later. US intelligence officials say he has resurfaced recently in Yemen, after months in hiding following the death by drone strike of American-born firebrand AQAP cleric Anwar al-Awlaki last fall.

### Al Qaeda Bombmaker Designs Bombs to Hide in Cameras, Hard Drives and Pets

Source: <http://abcnews.go.com/Blotter/al-qaeda-bombmaker-designs-bombs-hide-cameras-hard/story?id=16314239#.T6vQ71KaXAm>

At the age of only 30, the al Qaeda bombmaker behind the foiled plot on U.S-bound planes has emerged as the most feared face of terror for American authorities, a master technician with a fierce hatred for America and ingenious plans for hiding hard-to-detect bombs inside cameras, computers and even **household pets**.



### Naval Postgraduate School's Lighthouse Project Casts a Bright Light on IED Networks

Source: <http://www.firstresponder.gov/Pages/FRPDFArticles.aspx?Article=87>

When improvised explosive devices (IEDs) talk, they have a lot to say. Each wire and detonator helps tell a story of who created the device. Their locations across a battle-space help create a visual map of IED networks. And now, two students in the Naval Postgraduate School's defense analysis department are proving that efficiently recording and analyzing those IED details can save lives.

Building upon an NPS Common Operational Research Environment (CORE) Lab program called **Lighthouse**, which utilizes mobile devices to gather socio-cultural data, Navy Lts. Deak Childress and John Taylor have developed an iOS-based app called Improvised

Explosive Device Network Analysis (IEDNA), which will allow Explosive Ordnance Disposal (EOD) technicians to compile key information about IEDs into a streamlined and accessible database.

"We really tried to look at a way to capitalize on all of the component data that counter IED forces are required to collect. As it stands now, dozens of times a day throughout Afghanistan, counter IED forces, specifically EOD guys, are required to go out and collect enormous amounts of data," explained Taylor.

"What was the bomb made of? What were the specific components? How much explosive was used? Where



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was it located? They really try to paint a picture of exactly what happened.

“However, the data that’s collected isn’t being used efficiently or effectively in our opinion,” he continued. “So when we both came to NPS and heard about Lighthouse, we thought, ‘Why isn’t this being used on IEDs?’”

Childress and Taylor saw an opportunity for the concept of human-network mapping to be used in mapping IED networks based on the bombs’ ‘signatures’ or components that link the device to other IEDs collected. Presently, the raw data reports, collected in a post-blast analysis or IED neutralization, are done on paper, and later transferred into a digital report which is filed and largely unused at the tactical level. These reports are analyzed by multiple agencies, but according to the research done by Childress and Taylor, are not being fed back to the tactical operators in a timely or effective manner. Individual IED networks are commonly referred to as a single network, leaving little understanding at the tactical level about the individual threats.

With their combined intelligence and EOD perspectives, Childress and Taylor saw potential for the data to be analyzed to help tactical-level users better understand and potentially counter IEDs in hostile environments.

Marine Corps Capt. Carrick Longley, left, developed Lighthouse to utilize mobile devices in gathering socio-cultural data for situation awareness. The project has evolved greatly, and current efforts such as those by NPS defense analysis students Lt. John Taylor, center, and Lt. Deak Childress, right, have expanded Lighthouse to develop a resource for gathering and mapping data on improvised explosive devices and the networks that create them.

“According to the Joint Improvised Explosive Device Defeat Organization, the number of IEDs found and cleared continues to trend upward,” explained Childress. “So we are getting better at finding and exposing them before they blow up. And the severity of injuries from IED explosions is trending downward. But the overall number of attacks continues to exponentially go up.

“And that tells anyone looking at the problem that you’re not effectively attacking the network that’s putting those things in place,” he continued. “So that’s the line of operation that we focus on – ‘Attack the Network.’”

Using mobile devices to input data not only means reports can be generated instantly, but the data can also be unified to a common format with each entry. This streamlined system would mean analysts searching the database would be looking at seconds or minutes rather than the current system’s days or weeks.

“Right now, guys when they are reporting are taking notes and whether it’s a notepad or a Humvee window with a grease pencil, they get back and have to type out a big report, or multiple reports,” explained Childress. “They have to recall some things that they might have forgotten to get at the scene. What color was that wire? Was it red or was it green?”

“If they did the same notes with this app, by the time they get back to their FOB [forward operating base], their report is already generated,” he continued. “So we are reducing the reporting burden on the EOD techs, while at the same time structuring the data that enables Intel guys to pull it into different analytical programs and do some powerful stuff with it.”

What IEDNA brings to the conversation is the possibility of bringing mobile devices to the front lines to help improve the ease and efficiency of data collection. When Lighthouse was thought up in 2009 by NPS information sciences student Marine Corps Capt. Carrick Longley – then a master’s student and now in his Ph.D. program – Longley envisioned a data-collection system that would allow for socio-cultural data to be collected on-site, and later analyzed to map the social networks of people of interest.

Initially part of his thesis research, then called the Field Information Support Tool (FIST), went on to utilized in other capacities, but Longley and the CORE Lab wanted to continue to explore the program’s potential in more of an open source model of development.

“FIST and Lighthouse are similar in practice, but we have certainly advanced what we have been doing since transitioning to Lighthouse. If you look at the software today and the methods today, and you looked at it two years ago, they are not the same,” explained Longley. “One is a commercial product that is out there being tested, evaluated and used, and the other one is a research project that is being tested, evaluated and used, but with a different aim. The aims of the research project are the advancement



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of knowledge and understanding of [this phenomena].

“We didn’t feel like our project was finished simply because something had been transitioned into a commercial product. We wanted to continue to refine all of the practices and procedures for what we were doing, and really focus on the elements here in the CORE Lab,” he added. “And that’s why we have continued to really focus on open source and commercial-off-the-shelf technology and low-cost solutions to be able to do this data collection for the DOD.”

Lighthouse has proven itself in more than just foreign hostile environments. The Monterey County Joint Gang Task Force has recently adopted the application in tracking and mapping gang activity using mobile devices. Still in its initial phases of implementation, personnel on the task force use their Android- or iOS-based smartphones to input data gathered in their daily interactions with the community.

The app acts much like their traditional paper reports in the field, but enables officers to streamline identifying information – such as tattoos, gang affiliations, and the names of individuals connected to the suspect – and reference previously gathered information that might help identify inconsistencies or connections.

California Highway Patrol Captain William Perlstein explained that the process will improve the efficiency of the reporting system, and make important gang information instantly accessible for law enforcement officers in the

field. He commended Longley on his innovation, noting that the benefits of the system will likely continue to grow in number as law enforcement officers work on building a visual map of the human terrain in the areas with high gang activity.

“I’ve been doing this 23 years,” Perlstein noted, “and for me, this is the first time that I’ve ever seen where emergency services and law enforcement have worked with academia on a research project that is just completely applicable to what we are doing in the field.”

One of Longley’s initial objectives was to bring these concepts into the hands of warfighters, and first responders. He credits his time in Iraq for inspiring his work, sparking an interest in better understanding complex environments, and giving the ground level personnel the off-the-shelf tools to effectively gather and analyze data.

The CORE Lab continues to work with Lighthouse, providing training and education to students and end-users of the system. While designed with the DOD operator in mind, the department responds to the needs of first responder and law enforcement communities in delivering Lighthouse in a way that meets their unique needs.

“It’s a way of taking advantage of the technology as it’s advancing,” said Longley, “to improve our ability to understand these environments by applying a lot of the academic rigor that exists here at NPS in a very specific application for DOD and law enforcement purposes.”

## New explosives detection based on micro- and nano-cantilever beam sensors

Source: <http://www.homelandsecuritynewswire.com/dr20120511-new-explosives-detection-based-on-micro-and-nanocantilever-beam-sensors>

This month, the Ann Arbor, Michigan-based Naval Engineering Education Center heads south to check in on the progress being made on a collaborative project involving Tennessee State University and Florida Atlantic University where NEEC investigators and students are looking at ways to detect explosives using nano-sensor technology while protecting troops and saving lives.

Explosive devices, like Improvised Explosive Devices (IEDs), are responsible for a

significant number of casualties to U.S. and NATO forces in Iraq and Afghanistan. In fact, according to a *USA Today* news story published last year, IEDs accounted for more than 40 percent of all deaths caused during the war in Afghanistan in 2010.

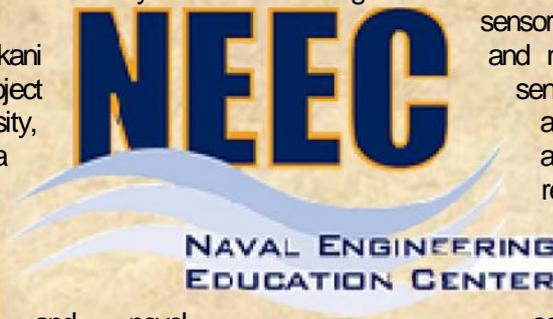
“Urban warfare has changed how we deal with wartime strategies,” says Dr. S. Keith Hargrove, the NEEC principal investigator on the project and dean of the College of Engineering at



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Tennessee State University. “Our NEEC research team is investigating methods to develop a new, improved, efficient way to detect explosives.”

According to Professor Malkani Mohan, a Co-PI on this project from Tennessee State University, “Detecting explosives is a challenging task, which is complicated by low vapor pressures, frequent introduction of new explosive compositions, and novel concealment techniques. Trace detection of explosives usually requires collecting vapor or particulate samples and analyzing them with a sensitive sensor system. Many different techniques are currently used but they are bulky, expensive and difficult to deploy.”



An NEEC release reports that this team’s collaborative approach is unique in that they investigate micro- and nano-cantilever beam sensors for detection. Micro- and nano-cantilever beam sensors offer a distinct advantage in that they are small, very responsive and very sensitive.

Furthermore, their sensitivity and selectivity can be tuned by modifying the surface treatment.

The Naval Engineering Education Center (NEEC) is a consortium comprising fifteen institutions of higher education and two professional societies.

**Mass spectrometry for detection of trace quantities of explosives**

Source: <http://www.homelandsecuritynewswire.com/dr20120511-mass-spectrometry-for-detection-of-trace-quantities-of-explosives>

The detection of trace quantities of explosives is critical to defending civilian populations from terrorist attacks. Freneil Jariwala, graduate student at Stevens Institute of Technology,

B.C., Canada. Freneil is the only graduate student presenter who was awarded this privilege.

“The ASMS travel grant is well-merited recognition of the outstanding effort, talent and creativity that Freneil has demonstrated with this research,” says Dr. Michael Bruno, dean of the Charles V. Schaefer Jr. School of Engineering and Science. “This has substantial



**STEVENS**  
INSTITUTE of TECHNOLOGY  
THE INNOVATION UNIVERSITY

and Dr. Athula B. Attygalle of the Department of Chemistry, Chemical Biology & Biomedical Engineering have developed a method of modifying a commercial electrospray ionization source for ambient detection of explosives on surfaces.

A Stevens Institute of Technology release reports that at the American Society of Mass Spectrometry (ASMS) regional meeting on 17 April 2012, Dr. Ron Kong, chair of the North Jersey Section of the American Chemical Society, awarded Freneil a grant to present the results of his research at the 60th ASMS Conference on Mass Spectrometry and Allied Topics, to be held 20-24 May in Vancouver,

implications for homeland security, and it shows what extraordinary opportunities for impactful research are available to our students.”

In order to survey and protect high-risk areas, police and security personnel often rely on the heightened olfactory sense of dogs to detect trace quantities of volatiles, or chemicals with a tendency to vaporize, released by explosives. This presents a challenge because most explosives have very low vapor pressures. Alternatively, instrumental methods for explosives detection exist but require extensive sample preparation and analysis time. Mass spectrometry is the method of choice because of its



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extraordinary sensitivity, but even then, some mass spectrometry methods require extensive sample preparation.

Freneil and Dr. Attygalle have responded to this problem by developing a sample introduction system for mass spectrometry based on helium plasma. They report a simple modification to a commercially available electrospray ionization (ESI) source in order to sense very small traces of explosives in a non-invasive manner that does not require extensive sample preparation. In the course of their research, Freneil and Dr. Attygalle detected explosives (DNT, TNT, DNAN, RDX, HMX, CL-20, and PETN) which were deposited (~10 ng) on various surfaces, such as glass, steel, plastic, paper, cloth, and human skin.

“Of all the research students I have supervised during my career, I would place Freneil in the top two percent because of his tremendous research achievements,” says Dr. Attygalle. “This is an outstanding discovery with the potential to be applied widely in the near future.”

The release notes that Freneil’s research marks the third peer-reviewed publication to his

credit. His first, titled “Ortho Effect in Electron Ionization Mass Spectrometry of N-Acylanilines Bearing a Proximal Halo Substituent,” appeared in the *Journal of the American Mass Spectrometry Society* in 2008. Recently, one of his major discoveries on the “Formation of the bisulfite anion (HSO<sub>3</sub><sup>-</sup>, m/z 81) upon collision-induced dissociation of anions derived from organic sulfonic acids” was accepted for publication in the *Journal of Mass Spectrometry*. One of its peer reviewers commented, “The study represents a nice example of fundamental gas phase ion chemistry. Derivatives of sulfonic acids are an important class of organic compounds. The study is interesting and has practical utilities.”

“Stevens and ASMS share in their respective missions the critical responsibility of early identification and nurture of students with exceptional talent in order that they might achieve their full potential and establish bright careers,” says Dr. Attygalle. “I am confident that Freneil will become a prominent mass spectrometrists, either in academia or in the pharmaceutical industry in the near future.”

**Smartphone Application Assists in Bomb Threat Response**

Source: <http://www.firstresponder.gov/Pages/FRPDFArticles.aspx?Article=89>

Bomb threat incidents require first responders on the scene to make quick and precise



The FIRST-Bomb Response application will accommodate various smartphones. Courtesy of Applied Research Associates, Inc.

assessments and decisions based on rapidly changing information. If the bomb is real, how large is the blast radius? Where will people be sent in an evacuation scenario? Are there any critical infrastructure or special-needs

population centers in the vicinity of the bomb? These factors and others all affect how responders address bomb threats within the first precious minutes after detection. The US Department of Homeland security (dHS) science and technology directorate (s&t), the dHS national protection and programs directorate’s office of infrastructure protection (nppd/ip) office for Bombing prevention (oBp), and Applied research Associates, inc. (ArA) have partnered to develop a solution: the First responder support tools-Bomb response (First-Bomb response) application. First-Bomb response assists first responders in making informed decisions during bomb threat situations in order to safely evacuate people and secure the area until bomb squads arrive on the scene. The First-Bomb response application provides information directly to first responders via their smartphone or personal computer that will assist in quickly defining a safe distance to cordon-off around a bomb location.



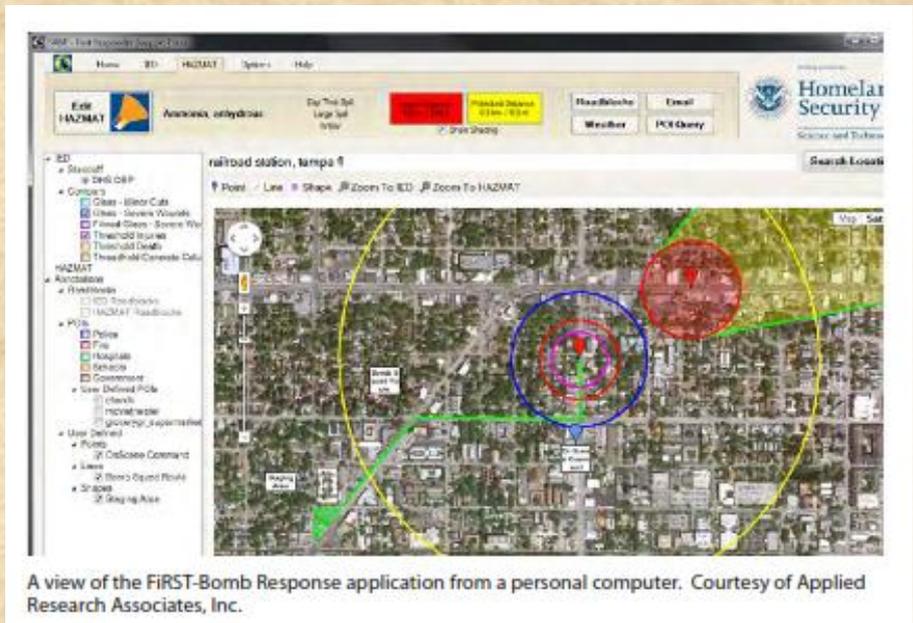
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The application provides appropriate stand-off distances, roadblock suggestions, instances when mandatory evacuation or shelter-in-place circumstances apply, and nearby areas of concern such as schools. It also provides information about areas where injury, glass, or structural support damage may occur. "This is why this tool will be successful," said Christine Lee, First program manager within DHS s&t's First responders Group. "First-Bomb response can be tailored to each specific local incident. Bomb threat scenarios do not reflect a one-size-fits-all approach, so this application will allow users to customize what information they want in order to help them make pertinent decisions on how to respond." The First-Bomb response application gathers critical response information by leveraging services readily available in today's smartphones, such as email, phone, Google Maps and Google search, and network connectivity for weather and road network data. Carl Jerrett, ArA program manager, said, "We use existing hardware with which responders are already familiar because, during the chaos of an incident, responders can't waste time navigating a complex interface." Jerrett also noted an added benefit for first responders utilizing the application. "now first responders will no longer have to carry additional tools such as hard-copy blast standoff guidance cards, rulers, or maps."

Sergeant Thomas Sharkey, the district of Columbia Metro transit police Bomb squad Commander, attested that "unlike other confusing software on desktop computers, this application is easy to purchase, easy to install, and even easier to utilize." Once a first responder enters details on the bomb size and location into the First-Bomb response application, results are instantaneous. For example, users can run a roadblock analysis using First-Bomb response to identify which roads are best suited for closure in order to isolate a bomb threat area. Users can also employ Google search features to identify and display locations with an increased number of individuals in potential risk, such as nearby hospitals, schools, and government facilities, and highlight these locations on a map. "First

allows responders to label a map with critical information. This information not only helps users better understand an incident, but sharing maps with other responders improves shared understanding," said Jerrett. In addition, users can quickly send results from First-Bomb response to colleagues via email, which includes a text summary, a map image, and Gis file attachments that are viewable in applications like Google earth.

During 2011, field evaluations were conducted to assess the First-Bomb response application. The Washington Metropolitan Area transit Authority bomb squad, police, eMt, firefighter,



and hazmat units participated in the operational testing and United States Secret Service personnel observed the evaluations. After testing and evaluating the technology, Sharkey said, "The First-Bomb response application is a must-have for bomb technicians and first responders. It is an easy-to-use application which calculates stand-off distances, blast radius, and assists public safety personnel in decision-making related to evacuations, traffic control, sheltering in place, and many other important features." The First-Bomb response application accommodates iPhones and iPads, Androids, and Windows personal computers. The application is widely accessible, available for purchase at a nominal fee on iTunes, the Android Marketplace, and ArA's e-commerce website, however, access to the DHS bomb stand-off data is limited to users that register with a .gov, .mil, or .us email extension.



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### Canadian airports deploy desktop explosives trace detection systems

Source: <http://www.homelandsecuritynewswire.com/srlet20120515-canadian-airports-deploy-desktop-explosives-trace-detection-systems>

Morpho Detection, Inc. (MDI), the explosives and narcotics detection business of Morpho, Safran group's security unit, said it has received an order from the Canadian Air Transport Security Authority (CATSA) for sixty-three Itemizer DX desktop explosives trace detection (ETD) systems.

The contract, valued at more than \$2 million, calls for these systems to be deployed to airports in Canada to support passenger and baggage screening efforts.

First certified by the U.S. Transportation Security Administration (TSA) in 2009, Itemizer DX uses Ion Trap Mobility Spectroscopy (ITMS) trace technology simultaneously to analyze both positive and negative ions from a single sample, providing threat and contraband detection.

"Morpho Detection is pleased CATSA has recognized the operational capabilities of Itemizer DX by placing their first order for this industry-leading desktop trace solution," said Brad Buswell, president and CEO, Morpho Detection, Inc. "Our work with CATSA is another example of Morpho Detection's

commitment to helping enhance the accuracy and efficiency of the aviation security screening processes through the deployment of



advanced technologies."

The company says that more than 30,000 Itemizer DX is deployed at airport checkpoints, checked baggage screening, and air cargo transportation facilities, critical infrastructure and other secure locations around the world.

### Quantum Sniffer™ QS-H150 Portable Explosives Detector

Source: [http://www.implantsciences.com/QS\\_H150.html](http://www.implantsciences.com/QS_H150.html)

The Quantum Sniffer QS-H150 employs a patented vortex collector for the simultaneous detection of explosives particulates and vapors with or without physical contact and in real-time. Far more sensitive than other detection devices, the advanced Quantum Sniffer can detect parts-per-trillion (ppt) levels of explosives vapor and nanogram quantities of explosives particulates for most threat substances.

#### Accurate and Efficient

The QS-H150 has automatic and continuous self-calibration. It monitors its environment, senses changes that would affect its accuracy, and re-calibrates accordingly. No user intervention, no calibration consumables, no system down-time.

For detection, the sample is collected by the vortex, ionized photonically, and analyzed via ion mobility spectrometry (IMS). The presence of a threat is indicated by a visible and audible alarm, and the substance is identified and displayed on the integrated LCD screen. Optionally, and at any time, a monitor and keyboard may be connected for convenient access to spectrogram display and analysis tools, administrative tools, and diagnostics.

When detecting a threat substance, the QS-H150 rapidly alarms. This real-time detection limits equipment contamination and allows for ultra-fast clear-down.

#### Features:

- Photonic (non-radioactive) ionization



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- Patented non-contact vortex collector sample acquisition
- Automatic continuous self-calibration
- No calibration or verification traps
- Simultaneous vapor and particulate detection
- Threat and taggant identification
- Fast clear-down
- Minimal maintenance requirement



**Benefits:**

- Lower total costs of ownership
- Very low false positive rate
- Full range of detectable substances
- User-expandable threat library
- Fast analysis

**Quantum Sniffer™ QS-B220**

Bench-top Explosives & Narcotics Trace Detectors



The Quantum Sniffer QS-B220 is a bench-top explosives and narcotics detectors that rapidly detects and identifies trace amounts of a wide variety of military, commercial, and homemade explosives (HMEs) as well as narcotics. Based on the same contamination resistant and non-radioactive Ion Mobility Spectrometry (IMS) analysis technology as Implant Science's QS-H150 hand-held, the QS-B220 brings a new level of performance and convenience to trace detection users.

**Accurate and Efficient**

The Quantum Sniffer performs real-time detection with ultra-fast clear-down. A positive detection is indicated by both visible and audible alarms. The system is available in configurations that support either on-screen substance identification or TSA approved alarm codes on the integrated high resolution color touch screen. Authorized users are also able to access spectrogram display and analysis, administrative, and diagnostics tools through the touch screen. Automatic and continuous self-calibration prevents errors that could result from an un-

calibrated instrument. The QS-B220 monitors its environment, senses changes that would affect its analysis, and re-calibrates accordingly. No user intervention, no calibration consumables, no system down-time.

**Lower Total Cost of Ownership**

Operation and maintenance expenses are extremely low with the QS-B220. Built-in long-life calibrants eliminate the need for calibration or verification consumables. Routine maintenance consists only of care and cleaning using common supplies, and desiccant replacement as required. No radioactive material is used in the QS-B220, so there are no associated certifications, licenses, inspections, or end-of-life disposal issues.

**Features and Benefits:**

- Automatic, continuous self-calibration:
  - Adjusts automatically to environmental changes
  - No calibration traps
  - No verification traps
- Fast clear-down means the QS-B220 is ready for the next sample in seconds
- Non-radioactive ion sources eliminate licensing, inspection, transport, and end-of-life issues
- Low maintenance design delivers low total cost of ownership
- Very low false positive rate



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- Full range of detectable substances
- User-expandable threat library
- Capable of rapidly detecting and identifying both explosives and narcotics

### Nanostructured sensor detects very low concentrations of explosive

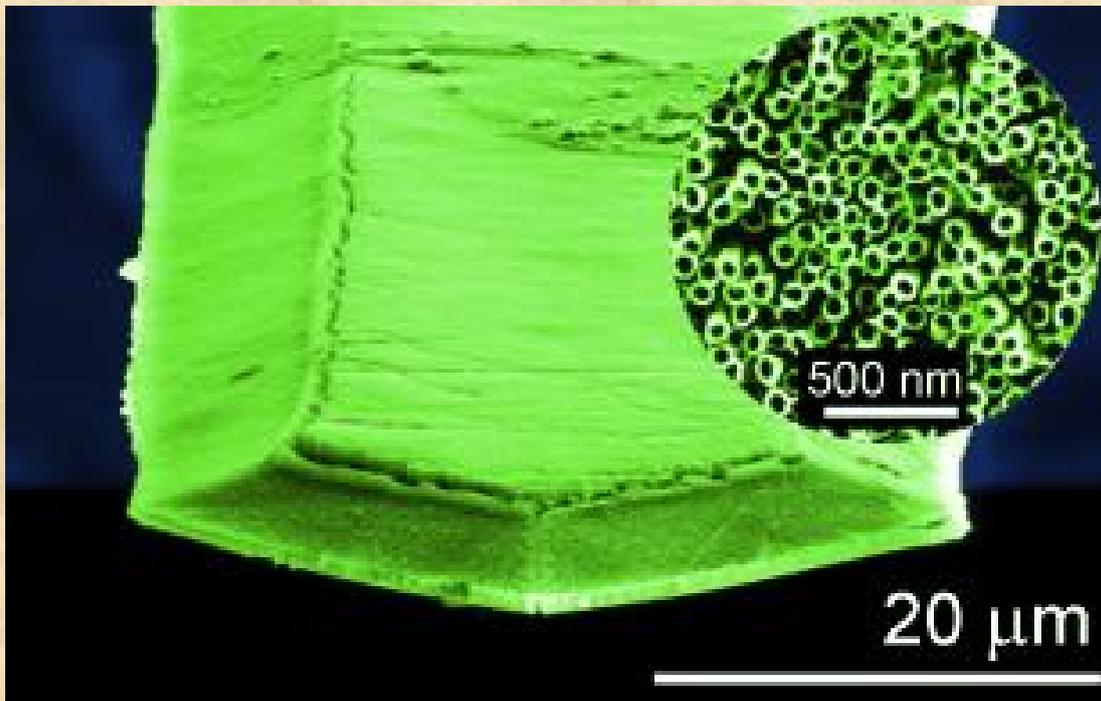
Source: <http://www.homelandsecuritynewswire.com/dr20120521-nanostructured-sensor-detects-very-low-concentrations-of-explosive>

To prevent terrorist attacks at airports, it would be helpful to detect extremely low concentrations of explosives easily and reliably. Despite the development of various sensor technologies, dogs continue to be the most efficient detectors. In the journal *Angewandte Chemie*, a German and French team has now described a type of micromechanical sensor with a structure derived from the sense organs of butterflies.

the microcantilevers are coated with a material that specifically binds to the analytes being detected.

Cantilevers can vibrate like springs. When analyte molecules are bound to a microcantilever, its mass changes along with its frequency of vibration. This change can be measured.

Because of their very low vapor pressure at room temperature, the highly sensitive, reliable detection of explosives remains a big



Silicon microcantilevers modified with a three-dimensional layer of vertical titanium dioxide nanotubes (see picture) can be used in micromechanical sensors with optical signal detection to detect low levels of explosives such as 2,4,6-trinitrotoluene (TNT) in the gas phase, even in the presence of other volatile impurities such as *n*-heptane and ethanol

A Wiley release reports that one approach used for sensors is based on microcantilevers. These are tiny flexible cantilevers like those used to scan surfaces with atomic force microscopes. When used in “chemical noses”

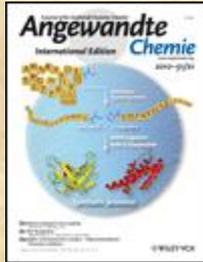
challenge. In order to make microcantilevers more sensitive to the explosive trinitrotoluene (TNT), research groups led by Denis Spitzer at the French-German Research Institute of Saint Louis and Valérie Keller at the Laboratoire des Matériaux, Surfaces et Procédés pour la Catalyse in Strasbourg have now taken inspiration from the highly sensitive sense organ of some types of butterfly. Male silk moths use this organ to recognize pheromone molecules excreted by females as they land on its broad antennae. These antennae are



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covered with sensilla, which are porous hairs containing chemosensing neurons.

The scientists equipped their microcantilevers like the butterfly antennae. They coated them with a dense three-dimensionally ordered layer of titanium dioxide nanotubes oriented vertically, like the butterfly sensilla. This has several advantages: the specific surface of the microcantilevers is significantly increased; titanium dioxide binds well to substances that contain nitro groups, which are characteristic of TNT and other explosives; also, the



— Read more in Denis Spitzer et al., “Bio-Inspired Nanostructured Sensor for the Detection of Ultralow Concentrations of Explosives,” *Angewandte Chemie* (27 April 2012)

tubes have an open structure, which improves the movement of mass and ensures a rapid sensor response.

The tubes are about 1,700 nm long and have an outer diameter of about 100 nm and a wall thickness of 20 nm. Each cantilever holds about 500,000 of these nanotubes.

For test purposes, the researchers vaporized TNA by heating a tiny crystal. The sensor was able to detect concentrations of less than one part per trillion (ppt) within 3 minutes. The researchers are now working on building a selective detector system for explosives or other gases based on this method.

## ATF Explosives Detection Canine Teams Help Chicago Prepare for NATO Summit

Source: <http://www.atf.gov/press/releases/2012/05/051812-atf-atf-explosives-detection-canine-teams-help-chicago-prepare-for-nato-summit.html>

Leaders from around the world gather in Chicago this weekend for the North Atlantic Treaty Organization 2012 Summit. Law enforcement throughout Chicago, including the Chicago Field Division of the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), are ramping up security in preparation for the historic event hosted by President Barack Obama, May 20-21.

ATF deployed several highly-trained special agents, paired with explosives detection canines, to assist in securing the facilities for the summit talks and events. ATF's K-9 teams are working side-by-side with other federal, state and local law enforcement officers to keep the diplomats and others attending the summit safe throughout the event.

The Explosives Detection Canine teams traveling to Chicago for the NATO Summit are the best of the best, said Andy Traver, Special Agent in Charge of the ATF Chicago Field Division. These handlers and their K-9 partners train and prepare all year for an event such as this. Our K-9 teams are here to ensure that all the visitors arriving for the summit are safe.

The ATF K-9 teams are from Illinois, Kentucky, Michigan, Minnesota, New Jersey and Texas.

ATF has used its explosives detection canines at other special events including Republican and Democratic National Conventions, Presidential Inaugurations, G-8 Summit meetings, World Series, NASCAR events, 2002 Salt Lake City Olympics and Super Bowls.

ATF's program, which began in 1986, uses only Labrador retrievers. The dogs are supplied by the Guiding Eyes for the Blind, the Guide Dog Foundation, and Canine Companions for Independence. These specialty canines attend a 10-week training program with their handlers that are conducted at the ATF Canine Training Center in Fort Royal, Va. Upon completion of this course, the canines are trained to detect a variety of explosive compounds and materials that could be used in an explosive device. The canines can also detect firearms and ammunition and are used in the more traditional protective search and sweep operations. The teams train on a daily basis.





Left to right in photo: Special Agent/Canine Handlers Randall Dockens and Charlie – Dallas FD; Shawn Morman and Hope – Louisville; George Goodman and Hiku – Detroit; Mitch Wido and Deja – Chicago; Sheila Fry and Sunny – St. Paul FD; Chris Bombardiere and Ithaca – Newark FD

**Police defuse bomb discovered at stanbul McDonald’s**

Source: [http://www.todayszaman.com/newsDetail\\_getNewsById.action?newsId=282034](http://www.todayszaman.com/newsDetail_getNewsById.action?newsId=282034)



A bomb disposal unit of stanbul Police Department leaving a McDonald’s restaurant in stanbul’s Fatih after dafely defusing a bomb left in women’s washroom. (Photo: Cihan)

Turkish police successfully defused a bomb placed in a jar and left in the washroom of a McDonald’s restaurant in stanbul’s Fatih district in the early hours of Thursday morning. A



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suspicious jar placed under the sink of a women’s washroom was noticed by a McDonald’s employee at around 3:30 a.m. He immediately notified police. A police unit arrived on the scene and had a bomb disposal team remove the suspicious device. The area surrounding the fast-food restaurant was blocked off to traffic until 6 a.m. after the bomb had been safely defused, causing a 30-minute delay for trams. Police told the press that the bomb had been taken to a crime laboratory for further investigation and added that footage from security cameras on and near the premises of the McDonald’s would be reviewed in order to identify who placed the bomb.

**A Serial Bomber in Phoenix**

Source:[http://www.stratfor.com/weekly/serial-bomber-phoenix?utm\\_source=freelist-f&utm\\_medium=email&utm\\_campaign=20120531&utm\\_term=sweekly&utm\\_content=readmore&elq=5f9aca26911b4a5184d4393032baebcb](http://www.stratfor.com/weekly/serial-bomber-phoenix?utm_source=freelist-f&utm_medium=email&utm_campaign=20120531&utm_term=sweekly&utm_content=readmore&elq=5f9aca26911b4a5184d4393032baebcb)

A small improvised explosive device (IED) detonated at a Salvation Army distribution center in Phoenix, Ariz., on the afternoon of May 24. Two Salvation Army employees discovered the explosive device, which was concealed inside a yellow, hand-held 6-volt flashlight, as they were sorting through a box of donated items. The IED exploded



when one of the employees picked up the flashlight and attempted to turn it on. The blast was not very powerful, and the two employees suffered only minor injuries.

**This was the third incident in the Greater Phoenix area in recent weeks involving an IED concealed in a flashlight.** Two explosive devices very similar to the May 24 IED exploded May 13 and May 14 in Glendale, Ariz., a city in the Greater Phoenix metropolitan area. Both devices were abandoned in public places. In the May 13 incident, a woman discovered a yellow, hand-held 6-volt flashlight next to a tree outside a Glendale business. When the woman picked up the flashlight and attempted to turn it on, it exploded, causing minor scratches and bruises to her face and hands. It also inflicted minor wounds to a woman beside her. The next day, a man found an identical flashlight in a ditch where he was working in another part of Glendale. He was lightly injured when the flashlight exploded as he attempted to turn it on.

So far, the explosive devices have failed to cause significant injury or death, but they do seem to indicate that there is a serial bombmaker operating in the Phoenix area. While it is not yet clear what the bombmaker’s motives are, past cases of serial bombers suggest that the publicity he has received



and the fear he has invoked will likely influence him to continue manufacturing explosive devices until he is captured. (Based on earlier cases involving serial bombers, it is also safe to assume that the culprit in the Phoenix area is a man.) The bombmaker’s method of concealing his explosive devices may also change after gaining publicity for this wave of attacks. Finally, there is a chance that the destructive effect of the bombmaker’s devices will increase as he becomes more proficient at building IEDs.

**Serial Bombers**

Serial bombmakers vary greatly in skill, motivation and affiliation. Most bombmakers involved with militant groups are, in effect, serial bombers, especially when they are exceptional bombmakers such as those we



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discussed in the May 17 Security Weekly. These include individuals such as Abu Ibrahim of the Black September Organization, Yahya Ayyash of Hamas or al Qaeda in the Arabian Peninsula's Ibrahim Hassan Tali al-Asiri. Such individuals typically create hundreds, if not thousands, of innovative explosive devices for their groups' terrorist operations over a span of many years.

However, not all serial bombmakers are associated with a militant group. There is a long history of individuals who have operated as serial bombers. From 1940 to 1956, George Metesky, who was known in the media as "The Mad Bomber," deployed 33 IEDs, 22 of which detonated, and injured 15 people. Metesky was angry after being denied disability pay following an injury he sustained while working for Consolidated Edison, Inc. After planting two explosive devices in 1940, Metesky observed a self-imposed moratorium on bombing attacks during World War II. He deployed the bulk of his devices – pipe bombs – from 1951 to 1956. He attacked not only Consolidated Edison, but also theaters, the New York subway system, the New York Public Library, Radio City Music Hall, Grand Central Station and other targets. Metesky was arrested after Consolidated Edison personnel managers identified him based on details he provided in threatening letters.

One of the most famous serial bombers in recent years was Theodore Kaczynski, also known as the "Unabomber." UNABomb was an FBI case name that stood for "University and Airline Bomber" – Kaczynski's first targets. From May 1978 until April 1995, Kaczynski deployed 16 IEDs that killed a total of three people and injured 23 more. Like the Metesky case, it was Kaczynski's writings that allowed him to be identified, though it was Kaczynski's brother who identified him for authorities. As demonstrated in his manifesto, titled *Industrial Society and Its Future* (1995), Kaczynski was motivated by a fear of technology. He called for a revolution against modern society's "industrial-technological system."

Eric Rudolph first came onto the scene in July 1996 when a bomb he planted in Atlanta's Centennial Olympic Park detonated during the 1996 Summer Olympics. Rudolph also conducted IED attacks against abortion clinics in Atlanta in 1997 and in Birmingham, Ala., in 1998 and against a gay bar in Atlanta in 1997. Rudolph's IED attacks killed two and wounded

more than 100. Rudolph was motivated by his extreme anti-abortion and anti-homosexual convictions.

Not all serial bombers have intended to kill their targets. From 1994 to 2006, an unidentified bombmaker known by the media as the "Italian Unabomber" planted dozens of small IEDs in various locations in Italy. While many of the IEDs were pipe bombs, the Italian bombmaker also concealed IEDs in cans of tomato paste, cigarette lighters, church votive candles and in items intended to target children, such as bottles of soap bubbles, colored markers and Kinder Eggs. The size of many of these devices suggests that the bombmaker hoped to maim and terrorize his victims but not kill them. A suspect was arrested in the Italian case but was later acquitted, and the case has never been officially solved. Since many serial bombmakers, such as Metesky and Kaczynski, go through periods when they suspend bombmaking activity, it is possible that the Italian bombmaker is still at large and will attack again.

### The Learning Curve

Of these historical examples, Rudolph stands out because from the beginning of his campaign he used relatively powerful devices that were constructed with a main charge of commercial dynamite and that contained nails as added shrapnel. From the outset, Rudolph appeared to have been bent on killing. This is different from the case of the Italian Unabomber. Rudolph's explosive devices also functioned as designed, and his first device proved deadly, an accomplishment aided by the fact that he was constructing them from stolen commercial explosive components rather than dealing with homemade bomb components and explosive mixtures.

However, all serial bombmakers must overcome a learning curve. A bombmaker's first explosive devices typically malfunction or only partially detonate until he perfects his craft. For example, the two devices Metesky deployed in 1940 failed to explode, but when he resumed his bombing campaign in 1951, his first device functioned as intended. Still, of the 33 devices Metesky planted, one-third of them did not function as designed. Likewise, Kaczynski's initial explosive devices caused only light injuries. It was not until the 1980s that his bombs began to cause significant injuries to their



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victims, and he did not kill his first victim until 1985. By the mid-1990s, Kaczynski had become very deadly. His last two bombing attacks, in December 1994 and April 1995, both proved fatal.

A malfunction is not uncommon when a self-taught bombmaker constructs an IED using a new design and does not have the time or the place to test it. Essentially testing the explosive device when he deploys it, the bombmaker applies lessons from one operation to the next to improve his devices. This progression of bombmaking competence has also been displayed in many cases involving militant groups. Based on these cases, we believe it is highly likely that if the Phoenix bombmaker is not identified and arrested, he will continue along the learning curve and eventually construct more powerful – and thus more deadly – IEDs.

At this point it is unclear what is motivating the serial bombmaker in Phoenix. Young men sometimes construct small IEDs for their own amusement – and not necessarily for use in an attack – but in such cases they usually want to watch their devices detonate, oftentimes even recording the detonations to post them online. They will sometimes use such devices in pranks, such as to blow up mailboxes, but again, they usually like to observe the results. Abandoning IEDs in booby-trapped items for people to find and activate suggests a different motive. Reports suggest that there were ceramic shards and BBs added to the Phoenix devices. This indicates that the devices were intended to harm people rather than just scare them. There are reports that a pair of dice was found at the scene of one of the Glendale explosions, which has led some to speculate that the dice were left by the bomber as a calling card. Similarly, the box containing the booby-trapped flashlight in the Salvation Army attack also held books that were predominately concerned with murders and serial killers; this may also prove to be some sort of calling card.

### A Bombmaker's Signature

Forensic science has come a long way since the days of Metesky. Urged along by international terrorism cases and cases like the Unabomber investigation, bomb investigators, chemists and forensic technicians are far more advanced in their craft than they were a few years ago.

In a bombing, the evidence is not completely vaporized as many people believe. Certainly, the explosive charge may be mostly or completely detonated, but it will still leave behind traces of chemical residue that allow the explosive to be identified. In addition, portions of the main charge often times will not be detonated, especially with homemade explosive mixtures. Although they are frequently shattered and scattered, significant portions of the device's firing chain often can be recovered in a careful bomb crime scene investigation. It is not unusual to find batteries, wires, switches or pieces of clock or circuit board during a post-blast investigation. Sometimes pieces of the aluminum body of a blasting cap can be found.

In the case of the Phoenix bombings, the fact that the flashlights did not explode with much force will likely assist the police in their post-blast investigation, since device components were probably not thrown very far or even that badly damaged. It is also possible that an identifiable fingerprint or trace DNA evidence can be recovered from the explosive device. If used in the construction of the device, electrical tape is often an excellent place to recover such evidence.

Like other craftsmen, bombmakers tend to do things a certain way and to repeat it from project to project. They also favor certain components and tend to string these components together in much the same way. They will often connect the wires together in the same manner, use the same type of solder, connectors or tape, and in many cases they will even use the same tools to cut wires or other items, leaving tool marks that can be compared microscopically. All these unique factors combine to form what is referred to as a bombmaker's "signature." In many cases this signature is as unique and personalized as an actual written signature.

According to reports, the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) laboratory is working on the Phoenix case. The ATF lab has many decades of working post-blast investigations and, along with the FBI, has been heavily involved in maintaining something called the U.S. Bomb Data Center, which is a repository of data pertaining to bombing investigations that can be cross-referenced to uncover ties to past cases. The ATF lab, like the FBI lab's explosives section, also



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maintains an extensive database of bomb components and other signature items. However, unless there is a bomb signature item, fingerprint or trace DNA evidence that can be readily connected to a suspect, or unless authorities are able to trace one of the

components (such as the flashlight) back to the place of purchase, it is likely that the bombmaker will attack again – serial bombers usually do. The next time, the devices may be disguised in a different manner and may be more powerful.

**Defence CBRN Centre  
Winterbourne Gunner**



**CBRN Clinical Course**

**Course Outline.** The course covers the main CBRN hazards, using the all-hazards approach, and looks at medical support from point of exposure through to definitive hospital care. On completion, candidates will be in date for CBRN Clinical for 5 years (some units may require more frequent training periods and continuation training will be provided during PDT). Course components:

- General considerations
- Chemical hazards
- Biological hazards
- Radiological / radiological hazards
- Advanced CBRN casualty management
- CBRN Incident management
- Pre-hospital module day

**Teaching methods.** Lectures, cases studies, casualty simulation, practical demonstrations and tabletop exercise.

**Eligibility.** This course is open to medical officers, nurses and senior medics of the Defence Medical Services, NATO and PfP. This course is recommended for Emergency Medicine, Pre-Hospital Care, Internal Medicine and Intensive Care SpRs and Consultants as well as specialty nursing staff as military competencies training. Intermediate / Advanced Life Support or BATLS is desirable although not essential.

**Duration.** 4.5 days

**CPD Accreditation for 20 points & NATO STANAG 2954 compliant**



**COURSE DATES:**

- 14-18 May 2012
- 16-20 July 2012
- 29 Oct - 2 Nov 2012
- 25 Feb - 1 Mar 2013

**Applications through the Defence CBRN School:**

Email: [wbn-dcbnrc-sch-csecoord1@mod.uk](mailto:wbn-dcbnrc-sch-csecoord1@mod.uk)  
 Telephone: 01722 436266 (civilian)  
 94333 4266 (military)



Course Office  
 Defence CBRN School  
 Winterbourne Gunner  
 Salisbury SP4 0ES  
 United Kingdom



**Afghanistan War: Bomber Disguised As Woman Wearing Burqa Kills 4 French Troops**

Source:[http://www.huffingtonpost.com/2012/06/09/afghanistan-war-french-troops-killed\\_n\\_1583099.html?ref=world](http://www.huffingtonpost.com/2012/06/09/afghanistan-war-french-troops-killed_n_1583099.html?ref=world)

**A Taliban suicide bomber disguised as a woman wearing a burqa blew himself up in a market in**



eastern Afghanistan on Saturday, killing four French troops, officials said. The French forces were responding to a report of a bomb planted under a bridge in the main market area of Kapisa province's Nijrab district when the bomber walked up to them and detonated his explosives, said Qais Qadri, a spokesman for the provincial government. Taliban spokesman Zabiullah Mujahid claimed responsibility for the attack in an email.

**Missiles to engage swarms of small boats**

Source:<http://www.homelandsecuritynewswire.com/dr20120613-raytheon-demonstrates-missiles-to-engage-swarms-of-small-boats>

In the event of a military U.S.-Iran military clash, the Iranian Navy plans to use hundreds of small boats, equipped with anti-ship missiles, to attack larger U.S. ships in the waters of the Persian Gulf. Defending against swarms of small boats is not easy, and until recently the U.S. Navy had no effective weapon systems to deal with the problem. The Griffin B missile from Raytheon aims to offer an answer to the small-boat problem, and the company says that in a recent live-fire demonstration, the U.S. Navy proved the ability of the Griffin B missile to engage rapidly moving small boats.

"This demonstration shows the Griffin missile's effectiveness in engaging the type of small,

fast-moving boats used by swarming threats and pirates," said Harry Schulte, vice president of Raytheon Missile Systems' Air Warfare Systems product line. "Griffin is fully developed, in production, lightweight, precise, and can be easily integrated on a wide variety of vessels, making it an excellent weapon for near-term threats."

During the demonstration, which took place late in the first quarter of 2012, three Griffins were fired from a sea-based launcher at three separate speeding-boat targets more than two kilometers (1.2 miles) away. The weapons were guided by laser and scored direct hits on the target, achieving all demonstration objectives.





The Griffin missile is in production and integrated on the C-130 Harvest Hawk. The combat-proven Griffin A is an aft-eject missile designed for employment from non-conventional platforms such as the C-130 aircraft. Griffin B is a forward-firing missile that launches from rotary- and fixed-wing aircraft and ground-launch applications.

The Griffin enables soldiers to engage targets via a user interface and guide the weapon to the target using GPS coordinates or laser

designation. To maximize lethality, the user can choose to engage the target with height of burst, point detonation, or fuse delay.

The Griffin:

- Is 43 inches long, weighs 33 pounds, and has a 13-pound warhead.
- Has been fired from C-130 platforms and, most recently, from a modified RAM launcher.
- Has a proven track record of successful rapid integration.

