



## Preventing the Suppression of Uncomfortable Truths on Iran's Nuclear Program

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Yousaf Butt's [recent op-ed](#) in the *Bulletin of Atomic Scientists* about the February 13, 2013 ISIS ring magnet [report](#) and a related *Washington Post* [article](#) contains false information, assumptions, innuendo, and distortions of what the ISIS report states. As a scientific and technical organization ISIS welcomes independent analysis of its conclusions, and adjusts its analysis accordingly. However, Butt's work offers no rigor. Worse, his conclusions seem predetermined based on his preoccupation with devaluing ISIS's work and now the *Washington Post's* reporting. His writings do not affect ISIS's conclusions about Iran's attempt to acquire 100,000 ring magnets, undoubtedly for its gas centrifuges.

Moreover, Butt's op-ed follows a long line of faulty and biased op-eds, e-mails, and blog postings, in which he airs untenable analysis and engages in personal attacks. His efforts seek to silence those who disagree with him. However, the public needs to know the facts about Iran's nuclear program, even when uncomfortable, in order to design a responsible reaction to Iran that avoids war.

### Critique

Some of the mistakes in Butt's op-ed are:

Butt stated: "The ISIS report neglects to explain the many other applications for such ceramic ring magnets and jumps to the conclusion that the inquiry is surely related to Iran's nuclear program."

**Fact:** The underlying analysis, which incorporated the assessments of centrifuge experts, considered other uses for the ring magnets. However, the evidence overwhelmingly supported that these ring magnets were for the IR-1 centrifuge. Butt insinuates that because we did not mention other uses, we did not consider them. Other uses, including in loudspeakers, were amply considered. Moreover, we did not jump to any conclusions; we evaluated the ring magnets carefully for many months after obtaining the copy of the internet enquiry about 100,000 ring magnets.

Butt: "Assuming that the request to buy 100,000 magnets is genuine, it would be consistent with, for instance, an Iranian [loudspeaker company](#) interested in obtaining such [ceramic ring magnets](#). That is just one possible hypothesis, of course, but it seems a better explanation of the alleged inquiry than the suggestion of an overt attempt by Iran's nuclear program to source 100,000 of the wrong-sized ceramic ring magnets."

**Facts:** Butt's speculation about the use of the ring magnets is driven more by his predetermined beliefs than any knowledge of gas centrifuge ring magnets or, for that matter, loudspeaker magnets. Our conclusion about their use in IR-1 centrifuges was determined by a range of factors. For example, the dimensional match between magnets described in the enquiry and the IR-1 centrifuge magnets is remarkable, so much so that we took out the actual numbers to address the concerns of one centrifuge expert who believed the numbers should be treated as sensitive and not published.

The following table shows the matches in dimensions with the values removed. The “.” is the decimal point. Each entry represents a number in millimeters (e.g. 15.32 millimeters):

	<b>IR-1</b>	<b>Enquiry</b>	<b>Match</b>
Inner diameter	ab.cd	ab.cd	Exact to all four digits given
Thickness	ef.gh	ef.gh	Exact to all four digits given
Outer diameter	mn.op	mn.qr	Exact to two digits, differ slightly in digits op and qr

In two of the three dimensions, the match was in all four digits. In the outer diameter, the match is in two digits and close in the last two. It is highly unlikely that an innocent company would specify by chance ring magnets matching in two dimensions to one-hundredth of a millimeter and in the third to a millimeter. Thus, the match is too close to be coincidental, and the use of these ring magnets in anything but an IR-1 is extremely doubtful.

There is also a match in the magnetic properties between the enquiry and IR-1 ring magnets. This match only strengthens the assessment.

The ring magnets are not the “wrong size” as Butt claims. That the outer diameter of the ring magnet differs very slightly from the original is not unusual. A ring magnet’s dimensions can vary slightly and still be fine for the same centrifuge. In fact, this has happened before. The A.Q. Khan network, Iraq, and Iran changed the dimensions slightly but the ring magnets they used were for the same centrifuge.

Changes such as this one in the outer diameter lead to trivial design modifications that are made periodically, as the ISIS report stated, citing centrifuge experts’ assessments. A trivial design in the upper bearing which holds the magnets is just that. It does not involve the redesign of 50,000 centrifuges, as Butt has falsely stated elsewhere and insinuates in his *Bulletin* op-ed. The centrifuge would not need redesigning, and the ISIS report did not say that it would need to be.

Moreover, this type of dimensional analysis of ring magnets has uncovered secret centrifuge activity before. Such analysis of the ring magnets ordered by Iraq in the late 1980s in Europe were part of the evidence that Iraq had a secret gas centrifuge program based on an early German centrifuge called the G1, which contained a single rotor tube. Similarly, analysis of Iranian orders of ring magnets revealed evidence of a centrifuge program in the early 1990s.

Butt tries to cast doubt that Iran is expanding its IR-1 centrifuge program and equates such assessments as equivalent to charges that Iran is building nuclear weapons.

**Facts:** Quarterly safeguards reports of the International Atomic Energy Agency plainly show that Iran has been installing many new IR-1 centrifuges--about 5,000 of them in the last year for a total of about 15,800 IR-1 centrifuges, or an increase of 50 percent. Since the ring magnet enquiry appeared in late 2011, Iran has installed over 2,000 IR-1 centrifuges at the deeply buried Fordow enrichment site. Early in 2012, it installed 6,000 empty IR-1 centrifuge outer casings in the underground Natanz Fuel Enrichment Plant. As of early 2013, Iran had installed over 3,000 IR-1 centrifuge rotor assemblies in these outer casings-- 2,255 in the last three months. These data demonstrate that Iran has rapidly expanded the number of its installed IR-1 centrifuges in 2012, and could only be capable of doing so if it acquired the necessary equipment for their construction. In the past, Iran has also stated that it plans to build several tens of thousands of IR-1 centrifuges. This ring magnet enquiry was an early indicator of what Iran in fact did in 2012--greatly expanded its numbers of IR-1 centrifuges. The enquiry also

suggests this expansion will continue, in addition to Iran's deployment of up to 3,000 advanced centrifuges.

Why Butt is surprised about IR-1 centrifuge deployments is a mystery, as is his rush to equate the enquiry with an Iranian nuclear weapons effort. Our report did not address the subject of the possible military dimensions of Iran's nuclear programs.

Butt: "This value is substantially less than the 10 MGo trigger level given for centrifuge applications in [Annex 3 of the Notifications of Exports to Iraq](#) mandated by United Nations Security Council Resolution 1051 (1996)."

**Fact:** Butt cannot be faulted for not knowing that IR-1 ring magnets have values that are far below 10MGo as he admittedly knows little about gas centrifuges or their manufacture. However, Butt fails to mention that U.N Security Council resolutions sanction goods that Iran could use in its gas centrifuge program. The ring magnets in the enquiry would fall under these sanctions. He points to a 1990s U.N. Security Council resolution on Iraq while ignoring the relevant one issued a few years ago on Iran.

Butt insinuates that this case is similar to 2003 ring magnet cases about Iraq, a charge by the Bush Administration that ISIS criticized at the time as unjustified.

**Facts:** Butt's reference to Iraqi magnet cases is not applicable in this case and contains innuendo. Butt does not mention that a key U.S. argument on Iraq seeking a manufacturing plant to make ring magnets in 2003 was based on the faulty analytical comparison of their mass being similar to the ring magnets Iraq ordered for its centrifuge program in the late 1980s (the Iraqi centrifuge ring magnets are discussed briefly in an April 1992 article by Mark Hibbs and me about Iraqi centrifuge procurements, "Iraq's Shop-Till-You-Drop Nuclear Program," in the *Bulletin of Atomic Scientists*, vol. 48, no. 3, and in more detail in Iraq's *Full, Final, and Complete Declaration* issued in 1996. The former head of the Iraqi centrifuge program, Mahdi Obeidi, who was questioned by IAEA inspectors about this magnet plant before the start of the Iraq war in 2003, stated in a recent interview with me that the magnets' dimensions were very different from the ones used in the Iraqi centrifuge program up to its halt in 1991. Comparing masses is not a credible methodology and certainly not one used in the assessments underlying the ISIS report on ring magnets sought by Iran.

Moreover, between 1991 and the 2003 invasion, there was no indication that Iraq had attempted to procure ring magnets that IAEA centrifuge experts judged matched closely with the dimensions of Iraq's centrifuge ring magnets. Iran on the other hand has a well-documented history of attempting to procure ring magnets, as well as scores of other dual-use goods, that would be applicable to its centrifuge program.

Although Iraq's centrifuge program concentrated on more advanced ring magnets, Mahdi Obeidi also reminded me that Iraq's centrifuge program had by its halt in 1991 demonstrated that ferrite ring magnets would work in its single tube centrifuge based on the German G1 centrifuge. He told me: "Why go with the more advanced ring magnets when one can manage with ferrite ring magnets instead?" If Iraq had reconstituted its centrifuge program after 1991, he added, the overseas purchase of ferrite magnets for its centrifuges would likely have attracted much less scrutiny from authorities.

Butt tries to discount that the Iranian trading company could have been involved in breaking sanctions or procuring illicitly for Iran.

**Facts:** Butt fails to mention that the Iranian trading company seeking the ring magnets, Jahan Tech Rooyan Pars Company, had already been sanctioned by the Canadian government and this fact was in the ISIS report. The reason is related to its procurement of goods for Iran that could be used for nuclear or missile purposes. According to the Canadian government, “this company was listed under paragraph 2(a) of the Special Economic Measures Act (Iran) Regulations:

“a person engaged in activities that directly or indirectly facilitate, support, provide funding for, contribute to, or could contribute to, Iran’s proliferation-sensitive nuclear activities, or to Iran’s activities related to the development of chemical, biological or nuclear weapons of mass destruction or delivery systems for such weapons, including when the person is an entity, a senior official of the entity.”

## **Conclusion**

The above discussion shows that Butt's op-ed in the *Bulletin* has a substantial number of errors and distortions. He has little, if any, expertise in evaluating centrifuges, their subcomponents, or the smuggling methods Iran uses to acquire necessary goods abroad. He has certainly demonstrated those deficiencies in his writings on the ISIS ring magnet report and the related *Washington Post* article. Although ISIS welcomes and values differing assessments, the public must be aware of facts about Iran’s nuclear program and efforts to suppress them should be resisted as we search for remedies to the Iran nuclear issue while avoiding military options.