

The Threat Next Door: A Visit to Ahmadinejad's Nuclear Laboratory

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Amir Reza Jalilian, 39, is the kind of person anyone would want as a neighbor, work colleague or tour guide. He is a jovial man with a velvety voice who jokes a lot and frequently twirls his manicured beard. He has a family, loves good food and has trouble resisting sweets, a problem that is beginning to make itself felt on his hips. Everyone who works with him says that Jalilian is always helpful and wouldn't hurt a fly. It certainly seems that he is no Dr. Strangelove, a man who would take pleasure in seeing the world destroyed by nuclear weapons, or could even bomb it into oblivion himself.

There is, however, something disconcerting that the real Iranian scientist has in common with the fictitious monster Peter Sellers portrayed in the 1964 film "Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb," a stock character that has since come to embody the notion of a lunatic bent on destroying mankind. Jalilian is one of the leading experts on the medical use of isotopes. He works with the chemical elements that are enriched to make fuel for nuclear power plants, but can also be used as the building blocks of nuclear weapons.

The Innermost Sanctum of the Iranian Nuclear Program

Jalilian is indeed the kind of person one would want as a neighbor, work colleague or tour guide, provided he isn't leading a double life, and that his amiable nature isn't a façade, and that there is nothing phony or affected about him. Jalilian has offered to give SPIEGEL staff a tour of the innermost sanctum of the [Iranian nuclear program](#), through what is probably one of the most well-protected workplaces in Tehran, one that is carefully shielded from prying eyes.

Jalilian works in the northern part of the city, between two expressways, where the mountains are visible and the air is cleaner than in the smog-filled basin where much of the city lies. In the densely populated neighborhoods of the Iranian capital, a city of 13 million, apartment buildings alternate with supermarkets, restaurants and daycare centers. The hilly nuclear complex, which is the size of four football stadiums, is probably almost as large as Lale Park, which, like the government district,

is only a few minutes away by car.

There are no signs to reveal that this is the home of the Atomic Energy Organization of Iran, which, at least officially, is the heart of all nuclear activities in this country. The complex is sealed off with high walls and barbed wire, with electronic surveillance cameras scanning every hidden corner. Members of the Revolutionary Guard who are particularly loyal to the regime protect the site. All visitors must pass through several security checkpoints, including some with Geiger counters.

A Self-Contained World

It is a small, self-contained world, with its own mosque, cafeterias and administrative buildings. And if opposition sources are to be believed, it also contains highly dangerous laboratories. One of the world's most controversial nuclear research facilities, the Tehran research reactor, Jalilian's realm, is housed in an inconspicuous domed structure made of gray concrete.

United Nations experts and foreign intelligence agencies suspect that Iranian scientists like Jalilian could be working on the ultimate weapon for the theocracy's political leadership. Several of his colleagues have already been [assassinated](#). In January 2010, a remotely detonated bomb killed nuclear physicist Massoud Ali Mohammadi. A few months later, the nuclear scientists Majid Shahriari and Fereidoun Abbasi Davani were targeted in a double attack carried out almost simultaneously. In all likelihood, Israeli hit squads carried out the attacks.

That's the visible aspect of the conflict. But there is also an invisible aspect, the one that involves striking at the machinery: the cyber war, the attack by killer viruses sabotaging the Iranian nuclear facilities. Both attacks are taking place in parallel. Both are spreading fear and dismay within Tehran power circles. And both are dealing a decisive blow to a possible Iranian weapons program, but could also help prevent a conventional war that would claim thousands and thousands of casualties.

Officially, all three victims were professors. Mohammadi taught at the University of Tehran. Shahriari, an expert on neutron transport, taught at Shahid Beheshti University. Abbasi Davani, the only survivor of the attacks, was an expert in isotope separation. Although Jalilian is not on a UN list of Iranian scientists barred from traveling abroad -- like Mohsen Fakhrizadeh, a professor and Revolutionary Guard who is suspected of being the chief organizer of a weapons program -- he could be on a secret death list maintained by the Israeli Mossad.

'My Work Is Intended to Save Lives, not Destroy Them'

When asked if he is afraid of assassins, Jalilian responds, "Of course not," shaking his head, as he hands out white lab coats and plastic shoes and guides his guests through a personnel lock. "Why should I feel threatened?" he asks. "I just deal with nuclear materials used in cancer

therapy. My work is intended to save lives, not destroy them."

As he tells us during the tour through the reactor building, Jalilian studied in Tehran, the western German city of Aachen and in the United States. He says that almost a million Iranians in 135 radiation treatment centers throughout the country depend on the "nuclear kits" -- containers of molybdenum 99 isotopes -- produced here. But this is only one of the uses of these materials. The other is as a starting point for nuclear weapons.

The reactor-holding basin looks like a swimming pool in a horror movie. Eerie blue light beams appear in the dark water, produced by a phenomenon called Cherenkov radiation, which occurs when electrically charged subatomic particles pass through the surrounding water at high speeds. Silver tubes are leaning against the wall. A portrait of Iranian Revolutionary Leader Ayatollah Khomeini hangs on the wall above a table of test readings. The portrait is crooked and covered with dust, as if there had been more pressing matters than making sure it was straight and clean.

A 'Confidence-Building' Measure Fails

According to Jalilian, foreigners with no knowledge of the field are "very rarely" granted access to the site. Apparently the political leadership made an exception in January, when President Mahmoud Ahmadinejad, in what was dubbed a "confidence-building measure," invited selected ambassadors accredited with the International Atomic Energy Agency (IAEA) to visit the facility. But the event, intended as a PR coup, proved to be an embarrassment for the regime. The representatives of Germany, France and Great Britain, who are particularly suspicious of Iran's nuclear ambitions, were not invited -- nor, for that matter, was anyone from the United States.

Ironically, if Americans had been invited, they could have brought along the old plans for the reactor. The United States built the five-megawatt, light-water research reactor, completed in 1967, and it even supplied the Shah's regime with weapons-grade uranium. It was an open secret in Washington that the Shah wanted to build the bomb, which didn't seem to bother US politicians at the time. The United States saw the Pahlevi monarch as a reliable ally and couldn't imagine that anything would ever change. The Americans stopped delivering the fuel rods after the 1979 revolution. Argentina provided Tehran with fuel rods for a time, but when UN sanctions were imposed because of Iran's ongoing deceptive cover-up tactics, it terminated all cooperation.