

Science Diplomacy: An American physicist's recounting of a visit to the *Islamic Republic of Iran*

Warren Pickett, UC Davis
<http://yclept.ucdavis.edu/iran.html>



Mohammad Akhavan
and Salt Man.
National Museum,
Tehran

How large is \hbar ?

The Climate, Geopolitical and Otherwise

The Primary Characters

Motivation for the visit; Activities

Interactions with Academics and with the Public

Sanctions against Iran: what is proscribed?

Science Diplomacy: what is it? who does it?

The Climate, Geopolitical and Otherwise

The complex borders of Iran!



Yet the gravest foreign policy issues are with a country on the other side of the world.

Recent History

1926-1941 ruled by Reza Shah Pahlavi

1941 Anglo-Russian invasion of Iran

1941-1980 ruled by Mohammad Reza Pahlavi (Shah of Iran)

1979 Islamic revolution, 11 days in February

1980 U.S. imposes sanctions against Iran

1979-1981 52 U.S. citizens held hostage in Iran for 444 days

1995 U.S. expands sanctions against Iran (and Libya)

2006 U.N. imposes sanctions against Iran

2010 U.S. expands sanctions against Iran

1980-1981 Abolhassan Banisadr

1981-1989 Ali Khamenei

1989-1997 Akbar Hashemi Rafsanjani

1997-2005 Mohammad Khatami

2005-2013 Mahmoud Ahmadinejad

2013- Hassan Rouhani

Presidents
of Iran

Iran (Persia)

Long history of advanced (Persian) civilizations and education

Since 1979, an “Islamic republic”: supreme leader; president, parliament,...

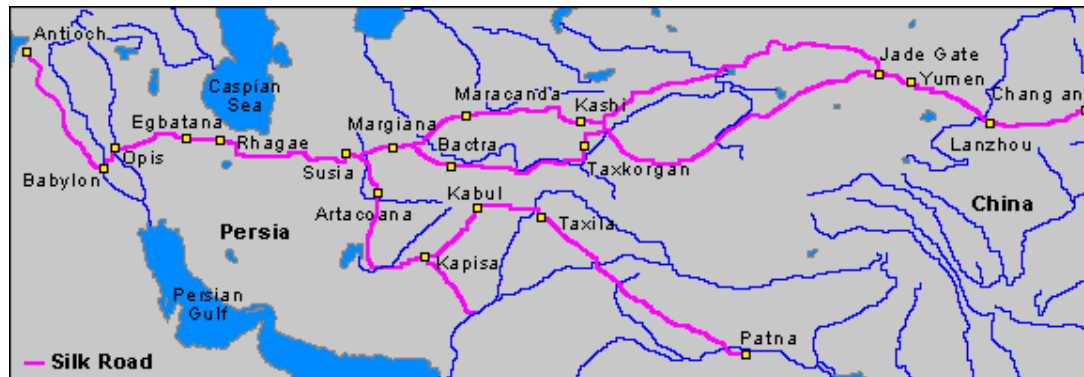
- certain Islamic practices form the most fundamental precepts (non-democratic)

- little concept of private property, most property/industry is government owned

- by constitution, university tuition is covered by government (4M students now)

Since 1979, severely isolated from much of the rest of the world

Sanctions are acknowledged by all to severely cripple development in all areas



Silk Road
through Persia,
dating from
~2500 years ago

Political Rhetoric

(America is) “the Great Satan, the wounded snake.”

Ayatollah Ruhollah Khomeini, November 5, 1979

(atheist Russia is) “the Lesser Satan...”

Ayatollah Ruhollah Khomeini

“(Iran, Iraq, North Korea comprise) the Axis of Evil.”

President G. W. Bush, State of the Union, January 29, 2002

...beyond the Axis of Evil: Cuba, Libya, Syria.

Undersecretary of State, John Bolton, May 6, 2002

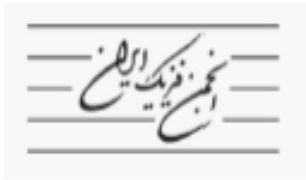
The Primary Characters On this Visit to Iran



Prof. Mohammad Akhavan
Professor of Physics
Sharif University of Technology

Conceived and remains the
force behind the conference series
Magnetic & Superconducting Materials

MSM99 Tehran, Iran
MSM01 Irbid, Jordan
MSM03 Monastir, Tunisia
MSM05 Agadir, Morocco
MSM07 Khiva, Uzbekistan
MSM09 Kolkata, India
MSM11 Port Dickson, Malaysia
MSM13 Tunis, Tunisia
MSM15 {Turkey}



چهارمین کنفرانس ملی پیشرفت‌های ابررسانایی

دانشکده فیزیک، دانشگاه صنعتی شریف

۱۷ و ۱۸ بهمن‌ماه ۱۳۹۲

سخنرانان ویژه:



Prof. A.J. Leggett، استاد دانشگاه ایلینوی

برنده جایزه نوبل ۲۰۰۳ فیزیک در ابررساناها و ابرشاره‌ها

Nobel Prize, Physics, 2003

Knighted, 2005



Prof. C.W. Paul Chu، استاد دانشگاه هیوستون

کاشف اولین ابررسانای بالای دمای نیتروژن مایع (YBCO)

National Medal of Science

President of HKUST



Prof. W.E. Pickett، استاد ممتاز دانشگاه دیویس کالیفرنیا

استاد ممتاز دانشگاه دیویس کالیفرنیا

Motivation and Activities

Motivation for visiting Iran at this time (all three scientists)

- Attend, present plenary & research lectures at NCAS4 conference
- Accept appointment as Adjunct Professor of Physics, Sharif University
- Accept appointment as Scientific Advisor to IRPAM (Physics, Sharif)
- Visit three additional universities, provide public lecture
- Concern for the isolation of Iranian scientists (at all levels)
- Opportunity to get a taste of Iranian life, activities, society, customs

NCAS4: 4th National *Conference on Advanced Superconductivity*

IRPAM: International **R**esearch Collaboration on **P**hysics of **A**dvanced **M**aterials

Tony Leggett's public lecture

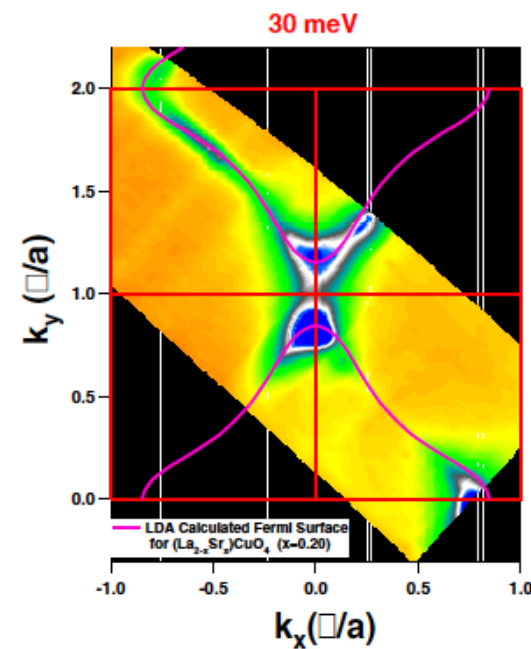
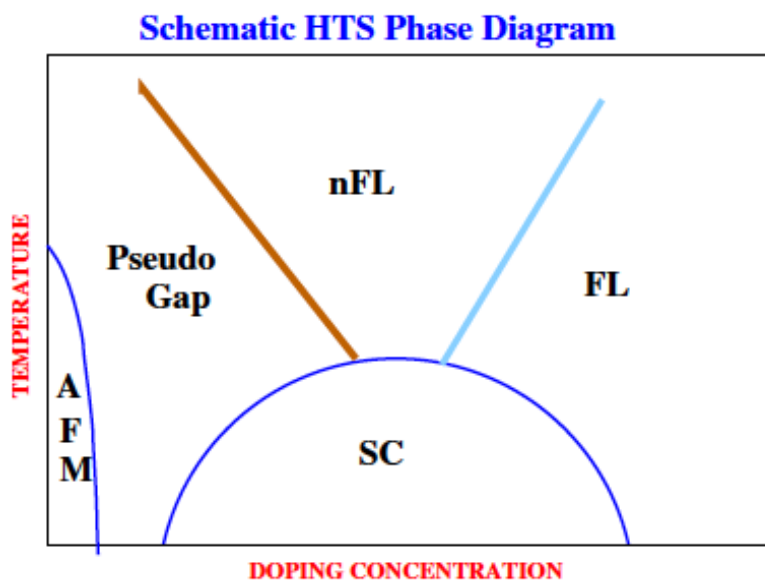




High Temperature Superconductors at Optimal Doping



W. E. Pickett, IJPR 2006



Calculated Fermi surface of LSCO
Superimposed on ARPES data

Several Question and Answer Sessions



Meeting and Dinner with Isfahan University science faculty



Hungry for contact with international scientists and academics



Scheduled Meetings during the Visit

Minister of Science, Research, and Technology Reza Faraji-Dana
Deputy of Intl. Affairs & Technology Exchange Ali Morteza Birang
Deputy Minister, Intl. Cooperation (MSRT) H. Salar Arnoli
Vice President for Research & Technology Sorena Sattari
Deputy of Technology & Innovation Mojtaba Khaham Nekouei
(under Vice Presidency for Science and Technology)
Minister of Tourism

President of Sharif University R. RoostaAzad
Former President of Sharif University Saeed Sohrabpour

Physics Chairs of 4 universities (Sharif, Isfahan, Isfahan IT, Shiraz)
Physics Faculty of 4 universities
Physics students at Sharif, Isfahan IT

IRPAM faculty at Sharif University: IRPAM kickoff

Much picture taking, here with physics faculty



Facts, Figures, Intentions, from Ministers & SUT President

Minister of Science, Research, and Technology

- 4.3M university students in population of 75M
- No tuition at government universities (by constitution)
- 25% female staff in government universities
- 7% of students are in the sciences
- West has twisted image of Iran; no borders for scientific connections

Islamic Azad University (1982): 1.5M students; private (donations, tuition,...)

Vice-president for Sci. & Technol., Deputy of International Affairs

- Interested in improving relations, developing new programs
viz. IRPAM (Advanced Materials) at Sharif
- Want to discuss possibilities for connections

President of Sharif University (best technical university in Iran)

- 500 faculty, publish ~1500 papers/year
- 15 (?) departments, 12K students, 7K are grads (1K are PhD)
- 150B rials budget (\$50M); 50% from govt, 50% from industry
- Some areas of focus: IT, cell phones, health (petro is minor)
- Collabs with foreign univs, dual degrees (Waterloo, Nancy, HKUST, ...)
- Stanford EE chair: “Sharif is *best in world* in UG preparation of EE students”

www.al-monitor.com

Iran's science minister spurs dormant student movement

Minister Faraji Dana with President Rouhani



Reza Faraji Dana, Iran's Minister of Science, Research and Technology, has received a warning card from parliament. Faraji Dana is the second member of the new cabinet — after Minister of Education Ali Asghar Faani — to be called to parliament to answer questions in an open session. His answers about his hirings, however, did not satisfy conservative members of parliament (MPs), resulting in the warning card. Any MP who receives three warning cards, known as **yellow cards** in Iran, is automatically impeached.

UC Davis has led in connecting with Iran universities

“In the 1970s there were more Iranians on campus
than any other nationality.”

Bill Lacy, Vice Provost, University Outreach & International Programs

After 1979 revolution

- Iranian universities were closed
- several hundred faculty were let go
- reopened ~1981 with Islamic education model

From 1979-2004 no U.S. (western?) academics visited Iran

Chancellor Vanderhoef and others visited in 2004, 2008

UC Davis visits to Iran in 2004 and 2008

Joining Vanderhoef on this April 25–May 1 trip were Sacramento businessman and UC Davis Foundation board member Mohammad Mohanna, **Dean** of the CAES Neal Van Alfen, **Dean** of ENG Enrique Lavernia, **Vice Provost** for University Outreach and International Programs William Lacy, and **Director** of the International Alumni and Visitors Program Robert Kerr.

Chancellor Larry Vanderhoef has just returned from a historic trip to Iran with **six U.S. University Presidents**. The purpose of this trip was to continue to build bridges between the U.S. and Iran through strengthening scientific and educational collaborations with leading universities in the U.S. and Iran.

Interactions with Academics and with the Public

How large is \hbar ?

$$\hbar = 1$$



Paul and May Chu, Farzaneh Akhavan, Jill and Warren Pickett in bazaar

(Shiing-Shen Chern)



"Mike Jagger"
by Andy Warhol

Among European and American
art collected by Queen Farah

Occasional anti-U.S. messages

Our visit was during the 35th anniversary of the revolution



School girls in Isfahan, fascinated by American visitors





Shrine of Hafez.
Burial site of the famous
Persian poet Hafez (1315-1390).
Shiraz, Iran



Two additional encounters with Iranians

A night at the Opera: a historic performance

The Iranian immigration official: exit interview

Sanctions against Iran:
what is proscribed?

State Department Web Site Information

Iran Travel Warning (travel.state.gov)

Last Updated: November 21, 2013

The Department of State warns U.S. citizens to carefully consider the risks of travel to Iran.

Dual national Iranian-American citizens may encounter difficulty in departing Iran. U.S. citizens should stay current with media coverage of local events and carefully consider nonessential travel. This Travel Warning updates without change the Travel Warning for Iran issued May 24, 2013.

Some elements in Iran remain hostile to the United States..... (several paragraphs follow)

Sanctions against Iran: what is ~~not~~ proscribed.

One Hundred Eleventh Congress of the United States of America

AT THE SECOND SESSION

*Begun and held at the City of Washington on Tuesday,
the fifth day of January, two thousand and ten*

An Act

To amend the Iran Sanctions Act of 1996 to enhance United States diplomatic efforts with respect to Iran by expanding economic sanctions against Iran.

*Be it enacted by the Senate and House of Representatives of
the United States of America in Congress assembled,*

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the “Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010”.

Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010

Sec. 3(8): with respect to nongovernmental
organizations based in the United States –

- (A) many of such organizations are essential to
promoting human rights and humanitarian
goals around the world;
- (B) it is in the national interest of the United States
to allow responsible nongovernmental organizations
based in the United States to establish and carry out
operations in Iran, to promote civil society, and
foster humanitarian goodwill amongst the people of Iran
- (C) [continuing in a similar vein]

Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010

Sec. 3(10): the people of the United States –
(A) have feelings of friendship for the people of Iran;
(B) regret that developments in recent decades have
created impediments to that friendship; and
(C) hold the people of Iran, their culture, and their
ancient and rich history in the highest esteem.

Science Diplomacy:
what is it? who does it?

Science diplomacy from Wikipedia

Science diplomacy is the use of scientific collaborations among nations to address common problems and to build constructive international partnerships. Many experts and groups use a variety of definitions for science diplomacy. However, science diplomacy has become an umbrella term to describe a number of formal or informal technical, research-based, academic or engineering exchanges

In January 2010, the [Royal Society and the American Association for the Advancement of Science \(AAAS\)](#) noted that "science diplomacy" refers [to three main types of activities](#):

- "Science in diplomacy": Science can provide advice to inform and support foreign policy objectives.
- "Diplomacy for science": Diplomacy can facilitate international scientific cooperation.
- "Science for diplomacy": Scientific cooperation can improve international relations.

Scientific & Informal Diplomacy: 1960s & 1970s

Late 1950s through 1960s

- delegations of U.S. physicists visit U.S.S.R. physicists
- reciprocal visits to U.S. by U.S.S.R. physicists in 1960s
- some coordinated by the respective national academies

Early 1970s

- Chinese invite U.S. pingpong team to China to compete ~1972
- reciprocal visit by Chinese pingpongers to U.S. ~1973
- Kissinger (secret) visit to China to meet officials ~1973
- Nixon visits China, begins to introduce relations ~1974

<http://www.state.gov/e/rls/rmk/2012/182545.htm>

Science Diplomacy and Twenty-First Century Statecraft

Article: Robert D. Hormats

Under Secretary for Economic Growth, Energy, and the Environment

Science & Diplomacy, Vol. 1, No. 1 (March 2012)

Washington, DC, March 1, 2012

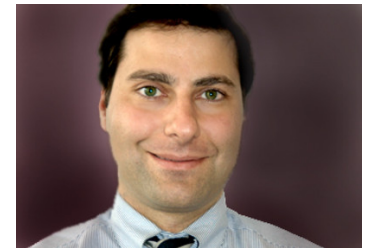
Science diplomacy is a central component of America's twenty-first century statecraft agenda. The United States must increasingly recognize the vital role science and technology can play in addressing major challenges, such as making our economy more competitive, tackling global health issues, and dealing with climate change. American leadership in global technological advances and scientific research, and the dynamism of our companies and universities in these areas, is a major source of our economic, foreign policy, and national security strength. Additionally, it is a hallmark of the success of the American system.....

Not mentioned here: science diplomacy is a two-way street....

AAAS program: Center for Science Diplomacy

The Center is guided by the over-arching goal of using science to build bridges between countries and to promote scientific cooperation as an essential element of foreign policy by raising the profile of science diplomacy, creating a forum for thought and analysis, and initiating bilateral activities

Vaughan Turekian,
AAAS Director of
Science Diplomacy



SCIENCE & DIPLOMACY

A quarterly publication from the AAAS Center for Science Diplomacy

Science diplomacy (The Guardian)

Science diplomacy works, but only when it's genuine. The Obama administration's revival of the concept of science diplomacy offers enormous potential. But the intelligence establishment has previously used science diplomacy as a cover for its own ends.

[The Guardian. Audra J. Wolfe is a writer, editor and historian based in Philadelphia.](#)

New frontiers in science diplomacy

Navigating the changing balance of power

January 2010



CELEBRATE
350 YEARS



THE ROYAL SOCIETY

AAAS

Summary

'Many of the challenges we face today are international and—whether it's tackling climate change or fighting disease—these global problems require global solutions . . . That is why it is important that we create a new role for science in international policy-making and diplomacy . . . to place science at the heart of the progressive international agenda.'

Rt Hon Gordon Brown MP, Prime Minister

February 14, 2014 - *CISAC, FSI Stanford News*
Hecker receives AAAS Award for Science Diplomacy

CISAC and FSI Senior Fellow Siegfried Hecker has been awarded the prestigious **Science Diplomacy Award from AAAS** for his dedication to building bridges through science. Hecker, director emeritus of the Los Alamos National Laboratory and CISAC co-director from 2007-2012, was honored at the AAAS's annual conference in Chicago for his "lifetime commitment to using the tools of science to address the challenges of nuclear proliferation and nuclear terrorism and his dedication to building bridges through science during the period following the end of the Cold War."



Siegfried S. Hecker visiting the disabled Yongbyon Nuclear Scientific Research Center, North Korea, in 2008



Siegfried Hecker, (left) with his former research assistant Niko Milonopoulos (center) and CISAC consulting professor Chaim Brun at the Semipalatinsk nuclear test site in Kazakhstan, Sept. 19, 2012.

Science Diplomacy:
An American physicist's recounting of a visit to the
Islamic Republic of Iran

This visit to Iran was informative, productive, delightful.

I recommend everyone to take advantage of similar opportunities.

University of Tennessee Knoxville

State Department advisor returns to UT to talk on science diplomacy

A State Department scientist with University of Tennessee connections will speak on science and international diplomacy at the

[Baker Center for Public Policy in November.](#)

[E. William Colglazier, the science and technology advisor to the U.S. Secretary of State, will speak on science and technology as important assets for diplomacy. Colglazier was UT professor of physics and from 1983 to 1991 was director of UT's Energy, Environment, and Resources Center, the predecessor to the current Institute for a Secure and Sustainable Environment](#)