

**My view on the regional cooperation
or/and
Problems in Theoretical Physics**

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Physics and Theoretical Physics in Armenia

- *Theoretical physics in Armenia shared common problems with another areas in physics*
- *Theoretical physics was the best developed field in physics in Armenia*
- *Theoretical physics in Armenia has been less destroyed than another fields of physics*

Main Problems

- *Drastical drop down of the number of active researchers*

- *Age Disbalance*

50-60 years old ~ 20

40-50 ~ 10

35-40 ~ 5

**Active researcher= person submitted in arxiv.org at least 5 paper
in last 5 years*

Consequences

- Drop down of the number of **active** researchers

Decay of existed internal collaborations : It was replaced by the individual integration in the Western groups.

This assume frequent visits abroad, which does not allow active teaching and thesis advise. These responsibilities are delegated to less advanced theorists.

Consequently, the quality of research of autonomous theorists is increased, but the quality of education was felled down.

Consequences

- Age disbalance

We almost lost relatively young theoretical physics community.

Inventions of the new directions of theor. physics are hindered.

Theoretical physics became not attractive for young generation

Best students prefer to make their PhD abroad or escape in IT

Positive

We still have relevant number

- *Of active researchers*
~ 70 persons
- *Of students :*
about 200 Bachelors (about 80 masters)
3-5 PhD thesis on theoretical physics per year

Theoretical Physics in Armenia

would collapsed

within one (realistic) or two (optimistic)

decades

What could/should we do?

- *Inter-disciplinary cooperation*
- *Inter-institutional cooperation*
- *Regional cooperation*

Completely absent: I found in ArXiv 2 papers with Iranian researchers in last decade, and 0 papers with those from Azerbaijan, Georgia, Turkey

Algebraic and geometric studies for condensed matter physics

(since Sept. 2006, YSU) <http://theorphislab-ysu.info>

- inter-disciplinary seminar (about **130** talks)
 - research group at Yerevan U. (of the age **35-47**)
 - Tigran Hakobyan*: spin lattice systems, quantum groups etc
 - Vadim Ohanyan*: spin lattice systems, CFT
 - Gor Sarkissian* (since 2011): CFT, Topological field Theories
 - A.N.* : Integrable QM systems, supersymmetry
- in cooperation* (and collaboration) with:
- Ye. Mamasakhlisov* (YSU): biopolymers
 - A. Allahverdyan* (YerPhI): quantum thermodynamics, stat. phys etc:
 - H.Sarkisyan* (Rus-Arm. U.): quantum dots, semiconductors.
- + *bachelor, master and PhD Students*

Some results

- *25 external co-authors from 12 Institutions, including 6 researchers and 5 students from Armenia*
- *Wide cooperation with Dubna, Frascati, Hannover U.*
- *Two workshops (2010, 2011): common papers*
- *Agreements INFN-Armenia, Rus-Arm. U. – Dubna;*

Our integrative potential inside of Armenia

is almost expired

*Pilot proposal for regional research cooperation
ICTP Network project (August 2009, not approved yet)*

Novel approaches to mesoscopic phenomena

Armenia(A.N.) - Brazil (Toppan)- Morocco(Jellal)- Turkey (Dayi)

+

Iran (Sheikh-Jabbari) [October 2011 update]

Regional Educational Cooperation: pilot project

THE REGIONAL TRAINING CENTER IN THEORETICAL PHYSICS

Submitted to Volkswagen Foundation (June 2011)

Yerevan U.: *key participants of seminar*

Tbilisi U. : *Tabidze, Eliashvili, Gogberashvili, Khelashvili,
Mdzinarashvili*

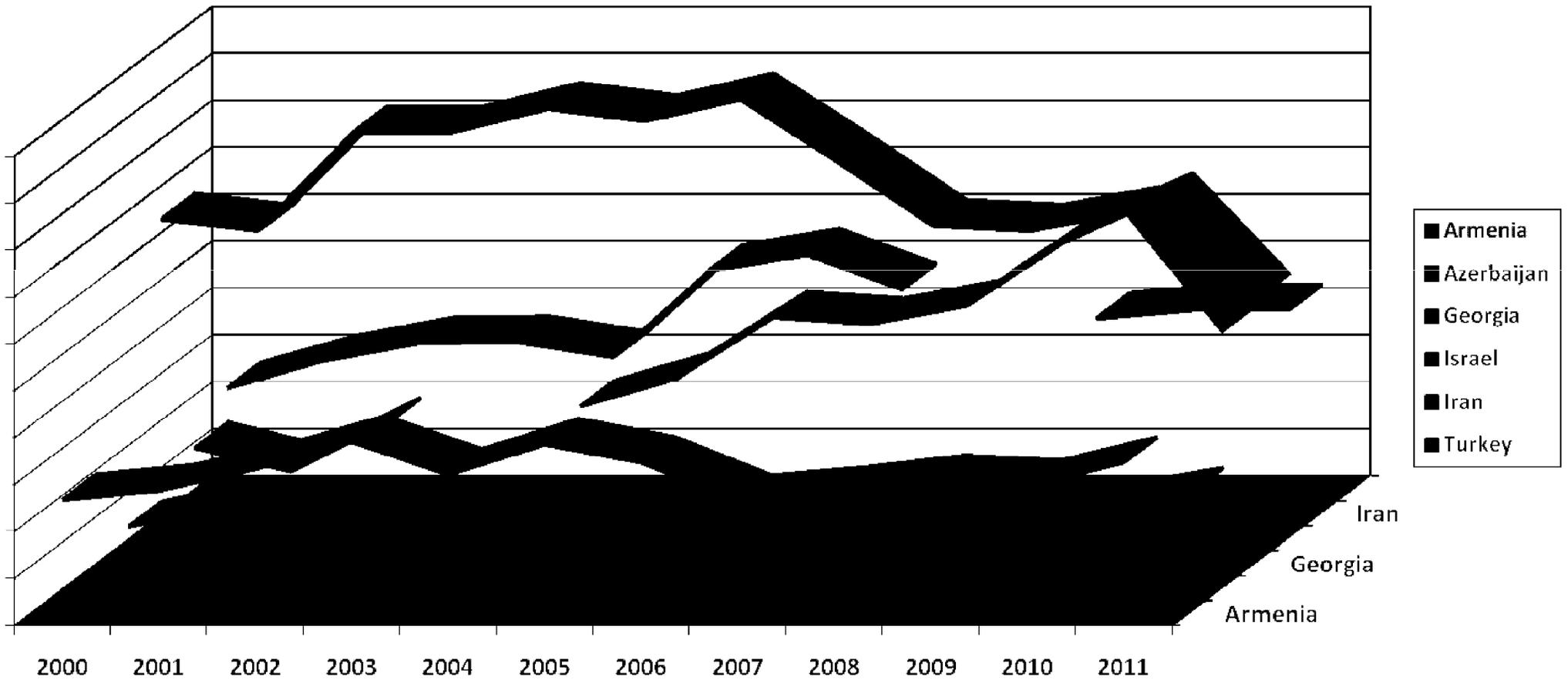
Bonn U. : *Meissner, Rusetsky*

*Joint PhD lecture courses, joint supervision of the PhD theses,
mutual visits, workshops*

Publications/citation on HEP and related topics SLAC-SPIRES for 23.10.2011

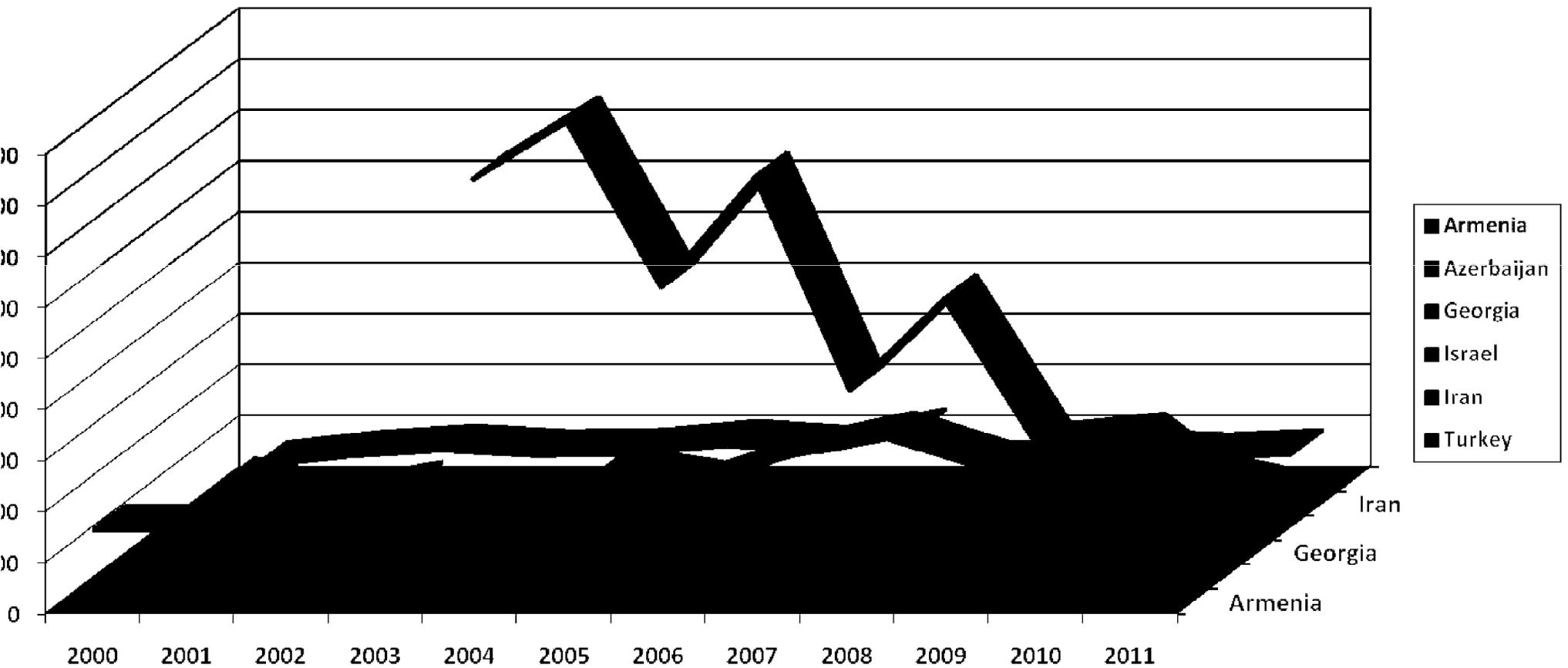
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Israel	353	341	446	446	471	458	481	415	346	341	360	233
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Turk	120	149	168	169	153	245	262	225	xxxx	194	203	203
	949	1357	1593	1385	1441	1775	1529	2250	xxxx	1398	1259	1436

Publications in HEP and related areas SLAC-SPIRES for 23.10.2011



Citation in HEP and related areas

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Save theoretical physics in
Caucasus !