Vacchi, Andrea birth: Nationality:

- **EDUCATION**

1976 **Degree in Physics *highest marks and honours,*** University of Bologna, Italy;
Thesis title: "Elastic scattering of muonic hydrogen on hydrogen".

- **CURRENT/PREVIOUS POSITIONS**

since 1997 **Research Director,** Istituto Nazionale di Fisica Nucleare (INFN), Trieste Section, Italy
1990 **Scientist and Senior Research Associate at INFN** Trieste Section, Italy.
1987 **Assistant Professor,** Physics Department, **Rockefeller University NY USA.**
1986 Senior Research Associate, Physics Department Rockefeller University NY USA
1983 – 1985 **Senior Fellow**, Exp. Physics Division European Centre for Nuclear Research (**CERN**)
1982 – 1983 Research Associate, Physics Department **Rockefeller University NY USA.**
1977 – 1982 R**esearch Scientist**, ETH-PSI **Swiss Federal Institute of Technology ETH** Swiss.

- **MAIN RESPONSIBILITIES IN COORDINATION OF RESEARCH**

2012 – **Responsible of the Detectors development project** within INFN EUROFEL, financed by the Italian Research Ministry MIUR.
2010 – 2013 **Principal investigator** of the experiment **GAMMA400** space satellite.
2009 – **Principal investigator FAMU experiment muonic hydrogen** precision spectroscopy
2008 – 2015 **Principal investigator** of the **XDXL-REDSOX** experiment for development of Silicon Drift Detectors for X-ray astrophysics (LOFT) and **ALS applications**.
1994 – 2011 **Responsible of the development of Silicon Drift Detectors** sensors for the tracking system at the **CERN LHC ALICE** experiment.
1994 – 1999 **Project Manager**, **satellite Wizard-NINA**, first successful INFN satellite (1997)
1993 – 2009 **PAMELA experiment Local coordinator & member of the scientific committee**.

- **MAIN INSTITUTIONAL RESPONSIBILITIES**

2012 – **Chair of INFN National Technology Transfer Board** http://www.pg.infn.it/cntt7/
2009 – 2011 **Member of the INFN Executive Board** (Giunta Esecutiva)
2003 – 2008 **Director of the Trieste INFN Section** http://www.ts.infn.it/
since 2009 **Scientific Technical Advisory Board** for the Material-Micro-system Centre **CMM** of Bruno Kessler Foundation FBK, Trento, Italy.
2000 – 2003 **Chair of the INFN National Scientific Board for R&D** http://www.infn.it/csn5/

- **TEACHING ACTIVITIES**

2014 – Following Italian DM 27 2012 Professor of Experimental Physics at University of Udine,. Teaching the course of Physics III at the Department of Mathematics and the interuniversity course for Udine and Trieste on High Energy Astrophysics.
1978 – 1982 Assitantfor the Physics course - Engineering Department ETH Zurich Switzerland

- **FELLOWSHIPS AND AWARDS**

2014 – 2017 **Visiting Scientist** Advanced Meson Science Laboratory, **RIKEN Nishina Center** for Accelerator-Based Science, Wako, Saitama, Japan
2012 – **President of FIT, the International Trieste Foundation for the future of sciences**.
2012 – **Board of Directors SISSA** International School for Advanced Studies Trieste
Member Representative of the Regional Government in the

- **COMMISSIONS OF TRUST**

2011&13 **Reviewer** - Accelerator and Detector R&D Program of the Scientific User Facilities Division, Office of Sciences, **DOE**; USA.
2010 – 2013 **Member of the Experts Group** OECD Global Science Forum on International Distributed Research Infrastructures
since 2009 Member of **LOFT** Consortium Council http://zoidberg.iaps.inaf.it/redsox/
2005 – 2006 Member **GSI FAIR cost-review subgroups CORE-E** for the evaluation of the costs of the proposed experiments at the FAIR accelerator at GSI in Darmstadt (BRD).

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

Member of Società Italiana di Fisica (Italian Physics Society) **SIF**;
Member of the World Academy of Sciences and Arts **WAAS (USA)**;
Member of the Instrumentation and Measurement Society **IEEE (USA)**.

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

Of the group of collaborators which I had the chance to carry ahead towards autonomy and growing responsibilities I recall here; Mirko Boezio, now Italian Principal Investigator of the PAMELA experiment; Claudio Piemonte, now responsible of detector's development ad CMM FBK Trento; Valter Bonvicini, Italian Principal Investigator of the GAMMA400 experiment and chair of the INFN National board for R&D; Alessandro Olivo, now Professor of Applied Physics and Head of the X-Ray Phase Contrast Imaging Group,University College London.

- **ORGANISATION OF SCIENTIFIC MEETINGS**

2014 Director & organizer GEOTHERMAL ENERGY: Status and Future in the Peri-Adriatic Area Veli Lošinj, Croatia, 25-27 August 2014; 60 participants.
2014 Organizing Committee & invited for closing scientific summary International Workshop on Radiation Imaging Detectors iWoRID 2014 Trieste - Italy; 230 participants.
2013 Co-chair organizer and speaker, Workshop: Science with GAMMA400, ICTP Trieste, Italy. 50 participants;
2012 Organizer Workshop on Recent Developments in Astro-nuclear and Astro-particle Physics ICTP Trieste, Italy; 60 participants.
2008 Chair of the whole sessions on applied physics,Italian Physics Society SIF yearly meeting

- **OUTREACH ACTIVITIES**

2008 – 2011 **Editorial Director & Scientific Board Chair** of the INFN outreach review ASIMMETRIE
2007 **Chair and organizer** of "Comunicare Fisica" conference held in Trieste, Italy dedicated to thematic and methodology of the physics outreach; 195 participants.
2006 –2007 Member of the jury of the National Scientific Journalistic prize "Il Voltolino" http://www.premiovoltolino.it/giurie1.html
2005 **Co-Chair** of the conference "Comunicare Fisica" held in Frascati LNF Italy a conference dedicated to teaching of physics 50 participants.

- **RESEARCH PERFORMANCE**

Co-author of 364 publications of which 277 articles , with a total of more than 11000 citations; 170 articles are from the last 10 years, with about 4400 citations; H-index = 39 (Source: INSPIRE).
ALL REFERENCES INSPIRE
http://inspirehep.net/search?ln=en&ln=en&p=A+Vacchi&of=hb&action_search=Search&sf=&so=d&rm=citation&rg=25&sc=0

- **ACTIVITY SUMMARY**

As **experimental physicist** my research has been balanced between deepening basic research arguments and the related development of the advanced detectors needed. My research has followed this key points*:*

- *Experimental physics in Cosmic Rays and at Accelerators*;
- *Semiconductor detectors development, and X-ray detectors;*
- *Medical & cross-disciplinary applications*.

My first research job was at ETH Zurich, working on high precision tests of QED vacuum polarization predictions in muonic atoms, the same argument of my thesis work, "muonic atoms physics". Since then, muonic atoms represent an uninterrupted source of progressive actions and study, like the quest for a way to measure the hyperfine splitting in muonic hydrogen on which I am working at present. Then at Rockefeller University NY to study p-p and p-pbar collisions on the UA6 experiment at the CERN proton-antiproton collider SPPS. I took the responsibility to realize a transition radiation detector, a particles identifier who greatly performed allowing an impressive of electron pair and J/φ identification. In 1986 I initiated (with a DOI grant while at the Rockefeller Univ.) the development of the first large area Silicon Drift Detector SDD, collaborating with the inventors E.Gatti and P. Reahk. This work's has lead to the construction, under my responsibility of the world largest SDD for the two central layers of the LHC-ALICE tracker (2007), then to the ambitious ESA LOFT proposal (2012) for X-ray astrophysics. In 1990 I moved to INFN in Trieste (I) starting an activity on cosmic rays. Soon I was brought to assume leading

roles in the Wizard, Nina and Pamela space projects. In all of them it was possible to apply and further develop advanced silicon detectors. The applicative work on silicon detectors allowed also a substantial contribution in X-ray digital mammography.

As **Chair of the INFN National Technology Transfer Board** (since 2012) I sat up a national network leading it towards effective ways and tools to improve exchange flow between research's technology outcome and enterprises. The goals are to create effective partnerships, foster product innovation, value technology and know-how, administer the patent portfolio and engage industry in the development of new market products.
The possibility to progressively bring together a group of valid and motivated collaborators has been very important in order to face projects of a growing size and ambition.

2009-11 **INFN Executive Board,** as a board member and reference for the central office for contractual and patrimonial transactions.I had, among my responsibilities, the supervision different national coordinating bodies like; the National Research and Development board CSN5, the board for New Acceleration Technologies, the board of medical applications technologies, the board supervising the Free Electron Laser Laboratory of LNF in Frascati, the board for the Equal Opportunities. Member of: the board of directors of the GARR the Italian Academic and Research telecommunication Network, chair of Technology Scientific Committee the of the Bruno Kessler Foundation in Trento, the board of financing agencies of neutrino factory experiment MICE at Rutherford laboratory UK, representative of INFN and research Ministry in the the European Project ELI Extreme Light Infrastructure.

As **Director of the Infn section of Trieste and Udine** (2003-2008) I dedicated particular attention to the development of high technology facilities in support of research like electronic and mechanic shops, computing network and services and a new computing farm, this to establish an efficient approach to front edge research and open-lab, technology-transfer friendly.