

Curriculum Vitae et Studiorum (*Salvatore Capozziello*)

Current Position

Full Professor in Astronomy and Astrophysics (SSD FIS/05)

Work Address

Dipartimento di Fisica "*Ettore Pancini*",

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Scientific Appointments

Coordinator of the PhD Program in Physics at the University of Naples "*Federico II*". Research appointment at the *Istituto Nazionale di Fisica Nucleare* (INFN), Sezione di Napoli (Gruppo IV), *Iniziativa Specifiche*: QGSKY (Gravitation and Cosmology) and TEONGRAV (Gravitational Waves). Research appointment at the *Istituto Nazionale di Astrofisica* (INAF), Research Areas: Cosmology and Relativistic Astrophysics. Member of the *Gruppo Nazionale di Fisica Matematica – Istituto Nazionale di Alta Matematica* (GNFM-INDAM) with a Research Appointment in General Relativity and Field Theory. Since 2012, President of SIGRAV (*Società Italiana di Relatività Generale e Fisica della Gravitazione*). Since 2013, Honorary Professor at *Tomsk State Pedagogical University* (TSPU), Tomsk, Russia. Since 2014, Visiting Professor at *Gran Sasso Science Institute* (GSSI) for Advanced Studies, L'Aquila, Italy.

Previous Positions

He spent periods as visiting fellows in Germany, Poland, Brazil, United States, Japan and United Kingdom. In 1996, he was hired as Lecturer in Theoretical Physics at University of Salerno. In 2003, he was promoted Associate Professor in Astronomy and Astrophysics at University of Naples "*Federico II*". In 2010, he was promoted Full Professor in Astronomy and Astrophysics at SISSA (Trieste) and then hired at University of Naples "*Federico II*".

Education, Specializations, Post-Doctoral Positions and Awards

Laurea degree in Physics at the University of Rome "*La Sapienza*" in the Academic Year 1988/89 and PhD in Theoretical Physics at the University of Naples "*Federico II*" in the Academic Year 1992/93. In 1993, he was awarded the Prize for the Astrophysical Sciences by the *Società Nazionale di Scienze, Lettere ed Arti* (Accademia di Scienze Fisiche e Matematiche). In 1994, he got the Specialization in General Relativity, Cosmology and Particle Physics at the University of Naples "*Federico II*" and, in 1995, he was appointed to a post-doctoral position in Extragalactic Astrophysics and Cosmology at the Astronomical Observatory of Capodimonte (Naples). In 1996, he was appointed to a post-doctoral position in Physics at the University of Naples "*Federico II*".

Scientific Activity

His scientific activity is mainly devoted to research topics in Cosmology, Relativistic Astrophysics and Physics of Gravitation in their theoretical and phenomenological aspects. In particular, his research interests are: Extended Theories of Gravity and their cosmological and astrophysical applications; Large Scale Structure of the Universe; Gravitational Lensing; Gravitational Waves; Galactic Dynamics; Quantum Phenomena in gravitational field; Quantum Cosmology. The main scientific achievement has been in 2002 when he introduced the concept of gravitational curvature quintessence to explain the cosmological dark energy. In the last decade, his main activity has been devoted to phenomenology and theory of dark matter and dark energy related to gravitational effects. The results of these researches are published in almost 500 papers appeared in international journals. Author of monographic texts on Extended Theories of Gravity, Gravitational Lensing, Cosmology and General Relativity (Eds. *Springer, Bibliopolis, Liguori, Nova Science*). He has been invited for about 50 plenary talks at International Conferences and Schools and more than 50 invited colloquia at different Institutes. He is in the Top Italian Scientists List (VIA-Academy).

Scientific Publications

http://inspirehep.net/search?ln=it&p=find+a+capozziello+&of=hb&action_search=Cerca...

citations and h-index

<http://scholar.google.com/citations?user=gGjuV8AAAAAJ...>

Top Italian Scientists

http://www.topitalianscientists.org/Top_italian_scientists_VIA-Academy.aspx...

Società Italiana di Relatività Generale e Fisica della Gravitazione (SIGRAV)

<http://sigrav.na.infn.it/...>

International Journal of Geometric Methods in Modern Physics

<http://www.worldscientific.com/worldscinet/ijgmmp...>

International Scientific Initiatives and Appointments

Editor in Chief of the *International Journal of Geometric Methods in Modern Physics* (World Scientific Pub.). Associate Editor of the International Journals: *Universe* (MPDI), *Frontiers in Physics*, *Journal of Modern Physics* (Scientific Research Publishing), *Journal of Physics and Astronomy* (Meta Press). Until December 2012, *The European Physical Journal C* (Springer). Since 2001, he was appointed for 5 years as member of the Editorial Board of the *Journal General Relativity and Gravitation* (Springer). Since 2001, he is member of the International Society of General Relativity and Gravitation (ISGRG). He is regularly appointed as referee for the international journals *General Relativity and Gravitation*, *Physics Letter A and B*, *Physical Review D*, *Classical and Quantum Gravity*, *Europhysics Letter*, *Modern Physics Letter A*, *Astronomy and Astrophysics*, *Astrophysics and Space Science*, *Monthly Notices of the Royal Astronomical Society*, *International Journal of Theoretical Physics*, *European Physical Journal C*. Member of the executive program of scientific and technological cooperation between Italy and South Africa for the research project *Alternative Theories of Gravitation and Cosmology*, II session (2005-2007). Coordinator, for the Italian Side, of an Integrated Bilateral Action (2007-2008) between the University of Naples "Federico II" and the *Instituto de Ciencias del Espacio-Barcelona* (Spain) (Title of the Project: *Dark energy and Modified gravity*). Local Scientific Coordinator of the Scientific

Project : *Constraining Cosmological Models by Gamma Ray Bursts* (PRIN 2009). Local Scientific Coordinator of the Scientific Project : *Advanced atomic interferometer for applications to gravity, quantum physics and geophysics* (PRIN 2015). Visiting Professor at the *Kobayashi-Maskawa Institute for the Origin of Particles and the Universe*, August 2013. Special Visiting Professor for the project *Science Without Borders Program, Brazil – CNPq* No: 400471/2014-0, *Theoretical and Observational Aspects of Modified Gravity Theories* from Jul 2014 - July 2017. Coordinator from the Italian side of the Bilateral Project with Republic of Serbia “*Testing Extended Theories of Gravity at different astrophysical scales*” executive program for scientific cooperation 2016-2018.

National Teaching Activity

Cosmology, General Relativity and General Physics at Undergraduate, Master and PhD levels at the University of Naples. He taught also Astronomy and Theoretical Physics at the University of Salerno. He has been the supervisor of almost 50 Master students and 20 PhD students along his career.

International Teaching Activity

He carries out a considerable teaching activity at international level. Since 2001, he has been in the teaching staff (as teacher of Cosmology and General Relativity) of the International PhD on Physics of Gravitation and Astrophysics, an international PhD consortium among the Universities of Berlin, Portsmouth, Potsdam, Salerno and Zurich. Contact Teacher for the SOCRATES/ERASMUS programs with the Universities of Portsmouth (UK), Valladolid (Spain), Bilbao (Spain), Salamanca (Spain), Cordoba (Spain), Saragoza (Spain), Darmstadt (Germany), Krakow (Poland), Wroclaw (Poland), Belgrade (Serbia) and Szeged (Hungary). PhD teaching duties at UNAM (Mexico City) in November 2010 and at Observatorio Nacional de Rio de Janeiro (Brazil), August 2015, March 2017.

Scientific divulgation/outreach.

Among his interests, there are History of Science and Epistemology. In particular, he is concerned in studies on the concept of time and the history of cosmological models. He is involved in divulgation scientific programs for high-school students and teachers.

Your Faithful

May 25, 2018

Salvatore Capozziello

Prof. Wolfgang Plastino
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Rome, 28th May 2018

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To Whom It May Concern

Curriculum Vitae

Wolfgang Plastino

- Roma Tre University - Associate Professor of Applied Physics

National Scientific Habilitation as Professor of Applied Physics

National Scientific Habilitation as Professor of Earth Physics

- International Atomic Energy Agency, Vienna-United Nations

Member of the Standing Advisory Group on Technical Assistance and Cooperation

- European Academy of Sciences and Arts, Salzburg-Austria

Member of the Class VI - Technical and Environmental Sciences

- Accademia Nazionale dei Lincei, Rome-Italy

Member of the Working Group on International Security and Arms Control

Scientific Secretary of the Edoardo Amaldi Conferences and Edoardo Amaldi Lectures

- École Polytechnique Fédérale de Lausanne, Lausanne-Switzerland

Associate Editor of the Journal of Frontiers in Physics - Interdisciplinary Physics

- Permanent Mission of the Holy See to the International Organizations, Vienna-Austria

Scientific Adviser to the International Atomic Energy Agency and

to the Comprehensive Nuclear-Test-Ban Treaty Organization

Wolfgang Plastino is Associate Professor of Applied Physics at the Department of Mathematics and Physics of the Roma Tre University (MATHPHYS-RM3) and Senior Researcher at the National Institute for Nuclear Physics (INFN). In 1991, he has graduated from the La Sapienza University of Rome with Laurea Degree in Physics. He spent most of his professional life working on Environmental Radioactivity at INFN-Gran Sasso National Laboratory (INFN-LNGS).

From 1992 to 1993 he served in the Italian Navy General Staff, and from 1994 to 1995 he joined Italian High School as Professor of Mathematics and Physics.

From 1996 to 2001 he was Research Scientist at the Department of Physics of the Roma Tre University (PHYS-RM3). In that period he was Scientific Coordinator for Environmental Radioactivity and Radiodating research project of PHYS-RM3 at INFN-LNGS.

From 2001 to 2006 he was Assistant Professor of Experimental Physics at PHYS-RM3. In that period he published as his most important scientific result the extension of the maximum dating limit for Radiocarbon from 58,000 BP to 62,000 BP by ultra-low level background liquid scintillation spectrometry at INFN-LNGS. Actually, it is the worldwide best result.

From 2001 to 2002 he was INFN Scientific Coordinator of the experiment HIRESPER (High RESolution SPectrometry for Environmental Radioactivity) developing a new portable alpha and gamma-ray spectrometer with YAP:Ce scintillator for environmental radioactivity monitoring in extreme conditions, those found in geothermal, volcanic and oceanic areas.

From 2002 to 2008 he was Italian scientific delegate at the Preparatory Commission of the Comprehensive Nuclear Test Ban Treaty Organization (CTBTO) – United Nations Vienna, as expert of radiometric surveys and environmental sampling for On-Site Inspection (OSI). He was CTBTO Lecturer for OSI Courses and Sub-Team Leader CTBTO on radiometric surveys and environmental sampling at the Direct Exercise 2005 at the Semipalatinsk Nuclear Test Site (Kazakhstan).

From 2003 he is INFN Scientific Coordinator of the experiment ERMES (Environmental Radioactivity Monitoring for Earth Sciences) focusing his research activity on neutron flux background at INFN-LNGS, uranium groundwater monitoring and extensional tectonic settings, atmospheric transport modelling, hydrological and hydrogeological modelling. On 2009, for the first time worldwide he detected at INFN-LNGS uranium groundwater anomalies in deep underground water related to geodynamical processes in a subduction area.

From 2006 he is Associate Professor of Applied Physics, Member of the Scientific Board of the PhD in Physics – MATHPHYS-RM3.

From 2011 to 2015 he was Member of the INFN Scientific Committee – Technology Research.

He was spokesperson of several research projects on Environmental Radioactivity for Earth and Environmental Physics in The Seventh Framework Programme (FP7) project ILIAS (Integrated Large Infrastructures for Astroparticle Science).

He was MATHPHYS-RM3 Scientific Coordinator with International Centre for Theoretical Physics - Structure and Non-Linear Dynamics of the Earth (ICTP-SAND) for geodynamic modelling of subduction areas by Actinides measurements in groundwater, and environmental radioactivity monitoring complementary to geophysical, petrological interpretation of the structure of the crust and upper mantle for a multiscale modelling of the dynamics of earthquake's faulting behaviour and constrain of crustal and upper mantle viscosity profiles.

From 2011 he is Scientific Coordinator of a project with CTBTO for testing and evaluation of algorithms and datasets in support of the verification mission of CTBTO on event screening categorization for International Monitoring System (IMS) radionuclides and International Noble Gas Experiment (INGE) data, and for characterization of subsoil and groundwater fluid dynamics by radionuclides tracers for OSI scenarios.

He is INFN Scientific Coordinator of research activities with International Atomic Energy Agency-Environment Laboratories (IAEA-EL) and European Commission Joint Research Centre-Institute for Transuranium Elements (EC JRC-ITU) on environmental behaviour of radioactive particles; low-level counting of environmental samples and characterization of reference materials, including methodological and technological developments; nuclear metrological techniques in the field of neutron measurements; analytical techniques in the field of radiochemistry.

He is INFN-RM3 Scientific Coordinator of research activities with European Gravitational Observatory-Virgo (EGO-Virgo) and Laser Interferometer Gravitational-Wave Observatory (LIGO) on new methodologies for characterizing the environmental noise and newtonian gravitational noise, and for developing new algorithms and tools for time series analysis.

He is MATHPHYS-RM3 Scientific Coordinator of research activities with Australian Radiation Protection and Nuclear Safety Agency-Environmental and Public Health on radionuclides atmospheric transport modelling by using atmospheric fields supplied by the European Centre for Medium-Range Weather Forecasts to the calculation of the source-receptor sensitivity fields.

He was Chairman of the International Conference INFN-IAEA (International Atomic Energy Agency - United Nations Vienna) on Environmental Radioactivity-New Frontiers and Developments (25-27 October 2010, Accademia Nazionale dei Lincei, Rome-Italy). He was Editor of a Special Issue and Special Book on Environmental Radioactivity-New Frontiers and Developments published by Journal of Environmental Radioactivity and Italian Physical Society & European Physical Society, respectively.

He was Scientific Secretary of the XIX Edoardo Amaldi Conference (Accademia Nazionale dei Lincei and European Commission Joint Research Centre) on International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation (30-31 March 2015, Accademia Nazionale dei Lincei, Rome-Italy). He was Editor of the Proceedings of the XIX Edoardo Amaldi Conference published by Springer.

He was Scientific Secretary of the I Edoardo Amaldi Lecture (Accademia Nazionale dei Lincei and European Commission Joint Research Centre) on International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation (26 October 2016, European Commission Berlaymont, Bruxelles-Belgium).

He was Scientific Secretary of the XX Edoardo Amaldi Conference (Accademia Nazionale dei Lincei and European Commission Joint Research Centre) on International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation - 60 Years of IAEA Atoms

Alessandra Retico

1999 - Laurea in Fisica, Università La Sapienza di Roma.

2003 - Dottorato di Ricerca in Fisica, Università La Sapienza di Roma.

2004 - Laurea Specialistica in Fisica Applicata, Università di Pisa.

Dal 2005 - Ricercatore dell'Istituto Nazionale di Fisica Nucleare, Sezione di Pisa

Dal 2015 - Coordinatore per la Sezione INFN di Pisa della Commissione Scientifica Nazionale 5 INFN

Dal 2014 - Abilitazione Scientifica Nazionale al Ruolo di Professore di Seconda Fascia (02/D1, SSD FIS/07)

Impatto scientifico (SCOPUS): 82 documenti, 1149 citazioni, h-index=17.

Attività di Ricerca e ruoli di coordinamento scientifico.

Alessandra Retico lavora dal 2002 nel campo dell'elaborazione di immagini diagnostiche, implementando tecniche di machine learning e sistemi decisionali, e ha contribuito a sviluppare nell'ambito dei programmi di ricerca dell'INFN un sistema di identificazione automatica di noduli polmonari (VBNA-CAD) nei programmi di screening con TAC multistrato a bassa dose per la diagnosi precoce di tumori polmonari, in collaborazione con le unità di Radiologia degli Ospedali di Pisa (Prof. Caramella e Dott. Falaschi). Il VBNA-CAD ha realizzato le migliori prestazioni nella competizione internazionale ANODE09 challenge (<http://anode09.grand-challenge.org/>) nel 2009.

Dal 2011 si occupa di imaging di risonanza magnetica, sia a campi magnetici utilizzati in studi clinici (1.5T e 3T), sia a campo ultra alto (7T). È membro dell'Alzheimer Disease Neuroimaging Initiative (ADNI) e del working-group sui disturbi dello spettro autistico (ASD) del consorzio internazionale ENIGMA (Enhancing Neuro Imaging Genetics through Meta Analysis). Collabora con l'Unità Operativa Complessa Laboratorio di Fisica Medica e Biotecnologie di Risonanza Magnetica e con la Divisione di Neuropsichiatria Infantile dell'Istituto IRCCS Fondazione Stella Maris (Pisa).

È stata responsabile di unità di ricerca INFN nel progetto GR2317873 (Supporting an early autism spectrum disorder diagnosis through the support vector machine approach), finanziato dal Ministero della Salute e Regione Toscana (2012-2016).

È stata responsabile scientifico del progetto specifico TEMA (Tecniche di Monitoraggio in Adroterapia) cofinanziato dalla Regione Toscana nell'ambito del Programma di Intervento INFN-RT (POR FSE 2007-2013). Ha coordinato come responsabile nazionale i progetti di ricerca INFN SEVEN (2011-2012) e TESLA (2013-2014) e come responsabile locale il progetto nextMR (2015-2017), i cui obiettivi includono lo sviluppo di modelli innovativi di bobine a radiofrequenza da utilizzare per imaging e spettroscopia in risonanza magnetica a 7 T in collaborazione con la Fondazione IMAGO7 (Pisa), e lo sviluppo di algoritmi per l'analisi dei dati acquisiti sia con scanner MRI a 7 T che con quelli in uso nella clinica (1.5 T e 3 T).

È responsabile di unità di ricerca INFN nei progetti: ARIANNA (Ambiente di Ricerca Interdisciplinare per l'Analisi di Neuroimmagini Nell'Autismo) finanziato dalla Regione Toscana (Bando FAS SALUTE 2014, PAR FAS 2007-2013); BRIC-ID39 (Modello computazionale e predizione quantitativa del SAR indotto dal campo elettromagnetico in Risonanza Magnetica a 7 Tesla in vivo sull'uomo nello studio del sistema muscolo-scheletrico), finanziato da INAIL (Bando BRIC, PAR 2016-2018).

È referente scientifico del progetto Q-MRI (Imaging Quantitativo in Risonanza Magnetica) del Programma di intervento INFN-RT2 (Bando GiovaniSi 2017 Asse A Occupazione - Azione A.2.1.7, POR FSE 2014-2020).

Pisa, 24 Maggio 2018



Alessandra Retico

for Peace and Development, and the EURATOM Treaty (9-10 October 2017, Accademia Nazionale dei Lincei, Rome-Italy). He was Editor of the Proceedings of the XX Edoardo Amaldi Conference published by Springer.

He was Invited Speaker (about 40) and Chairman in several international and national scientific Conferences, and Universities.

He was Member of the Editorial Board of Environmental Earth Sciences – Springer (Berlin, Germany). He is Associate Editor of Journal of Frontiers in Physics – Interdisciplinary Physics (École Polytechnique Fédérale de Lausanne, Switzerland). He is referee for international scientific journals on Environmental Radioactivity and Earth and Environmental Physics with higher impact factors.

He is coauthor of more than 100 publications on international and national peer-reviewed scientific journals.

He is Professor at MATHPHYS-RM3 for Courses in Physics, Environmental Radioactivity, and Environmental Physics.

He is Member of the International Atomic Energy Agency - Standing Advisory Group on Technical Assistance and Cooperation, Vienna-United Nations.

He is Member of the European Academy of Sciences and Arts (Class VI - Technical and Environmental Sciences), Salzburg-Austria.

He is Member of the Working Group on International Security and Arms Control of the Accademia Nazionale dei Lincei, Rome-Italy.

He is Scientific Secretary of the Edoardo Amaldi Conferences and Edoardo Amaldi Lectures of the Accademia Nazionale dei Lincei, Rome-Italy.

He is Scientific Adviser of the Permanent Mission of the Holy See to the International Atomic Energy Agency and to the Comprehensive Nuclear-Test-Ban Treaty Organization, Vienna-United Nations.

In 2013 (ASN 2012) he obtained the National Scientific Habilitation as Professor of Applied Physics.

In 2017 (ASN 2016) he obtained the National Scientific Habilitation as Professor of Earth Physics.



Prof. Wolfgang Plastino
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