

## CURRICULUM VITAE of Prof. Maurizio Fedi

Maurizio Fedi is Full Professor of Applied Geophysics at Dipartimento di Scienze della Terra, dell'Ambiente e delle Risorse (DiSTAR) Polytechnic and Basic Sciences School, Università di Napoli Federico II from 1-11-2000.

### EDUCATION AND TRAINING:

*Degree: Physics (1982)*

*PhD: Geophysics (1987)*

### COURSES CURRENTLY HELD:

- *Professor of Applied Geophysics (Bachelor Geology Degree), since 2000 ; University of Naples Federico II*
- *Professor of Geophysical Data Modelling (Master Geology Degree), since 2000; University of Naples Federico II*
- *Professor of Applied Geophysics (Master Physics Degree)*
- *Professor of "Laboratorio di geofisica applicata all'archeologia", ReParch, Master Universitario di II Livello in restauro e progetto per l'archeologia, Università Federico II di Napoli, 2018-2019; 2019-2020.*

### PHD TUTOR

- *Tutor for 20 PhD theses in Italian and foreigner universities*

### HEAD OF DOCTORATE PROGRAM

- *"Analysis and Modelling of Environment Systems", 2000-2005; University of Naples Federico II*
- *"Analysis of Environment Systems", 2009-2011; University of Naples Federico II*
- *"Earth Environment and Resources Science,", currently, since 2012; University of Naples Federico II*

### PRESIDENT OF THE SCHOOL OF DOCTORATE

- *President of the School of Doctorate on Earth Science, University of Naples Federico II, 2009-2011*

### FACULTY ADVISOR OF "SEG STUDENT CHAPTER"

- *Currently, since 2003. University of Naples Federico II*

### GEV (GROUP EXPERT EVALUATOR) FOR EARTH SCIENCES

- *2011-2014. University of Naples Federico II. ANVUR (Ministry MIUR, Italy)*

### MEMBER OF ASN (NATIONAL SCIENTIFIC QUALIFICATION)

- *2016-2018. Ministry MIUR, Italy*

### MEMBER OF CIRM

*2013-2016. Member of Committee on Hydrocarbons and Mineral Resources (CIRM), Ministry MISE, Italy*

### DIRECTOR OF ARCHAEOGEOPHYSICS LAB

- *Since 2003: INNOVA scarl, Centro Regionale di Competenza per la conservazione, utilizzazione*

*dei Beni Culturali*, <https://innova.campania.it/index.php/laboratorio-mobile-di-prospezioni-geofisiche-per-l-archeologia/>

#### EDITOR IN CHIEF

- *Currently, since 2016, "Journal of Applied Geophysics" (Elsevier)*

#### DEPUTY EDITOR

- *2011-2016, "Geophysical Prospecting" (Wiley)*

#### ASSOCIATE EDITOR

- *Currently, since 2003, "Near Surface Geophysics" (Wiley),*
- *2005-2011, "Geophysical Prospecting" (Wiley),*

#### GUEST EDITOR

- *Special issue: "Innovation in EM, Grav and Mag Methods: a new Perspective for Exploration", July 2009, Geophysical Prospecting, (Blackwell).*
- *Special issue "Adding New Value to Electromagnetic, Gravity and Magnetic Methods for Exploration", November 2011, of the international journal Geophysical Prospecting (Blackwell).*
- *Special issue "Nonlinearity, scaling and complexity in exploration geophysics" published in the international journal "Nonlinear process in geophysics", 2012, EGU.*

#### PI (PRINCIPAL INVESTIGATOR) FOR RESEARCH FUNDED BY PRIVATE AND PUBLIC COMPANIES:

- *Eni: 2001, 2002, 2004-2005, 2006-2008, 2009-2010, 2010-2012, 2019, 2020, 2021*
- *Edison: 2016-2017*
- *MIUR: 1998, 2000, 2002*
- *PRIN: 2005, 2007*
- *INGV: 2003, 2005*
- *CNR: 2012*
- *Regione Campania, 2005.*
- *Fondi Misura 3.16 – P.O.R. Campania 2000/2006.*

#### INVITED SPEAKER AT INTERNATIONAL CONFERENCES:

- *SAGA, 2003*
- *AOGS, 2005*
- *SIMAI, 2006*
- *GM Hangzhou, 2008*
- *"Continuous Wavelet Transform and Morlet's wavelet: International conference in honor of Jean Morlet" October 27-29th, 2008, CIRM, Campus de Luminy, Marseille*
- *EGU, 2012*
- *SLA, 2012*
- *EAGE-Near Surface, Oporto, 2018*
- *SOCIETÀ NAZIONALE DI SCIENZE, LETTERE E ARTI IN NAPOLI, Accademia di Scienze Fisiche e Matematiche, 2016*
- *Special Interest Group (SIG) di Schlumberger "[Electromagnetics and Potential Fields](#)": "Remanent Magnetization in the interpretation of Magnetic Data", March 2021*
- *IGC-New Delhi, 2020*

- *International School “Inversion and Machine Learning applications for the geoscience data analysis “: Inversion of Gravity and magnetic data. March 8-27, 2021.*

#### VISITING PROFESSOR

- University of British Columbia (UBC), 1997
- China University of Geosciences “(CUGB), 2008
- NGRI (Hyderabad, India), 2009
- Kalifa University, Petroleum Institute, Abu Dhabi, 2016
- University of Tehran (Iran), 2016
- China University of Geosciences, Wuhan, 2018
- China University of Geosciences, Beijing, 2018

#### AWARDS

- *CSIR Distinguished Foreign Scientist Award (INDIA), 2009*
- *Loránd Eötvös Award 2010 (EAGE)*
- *Lectio Magistralis at 30° Conference GNGTS, 2011*
- *Award “Licio Cernobori”, GNGTS, Trieste, Italy, 2015*
- *Award “Licio Cernobori”, GNGTS, Trieste, Italy, 2019*

#### GENERAL CHAIRMAN OF INTERNATIONAL CONFERENCES

- *EGM 2007: International Workshop “Innovation in EM, Grav and Mag Methods: a new Perspective for Exploration” Villa Orlandi, Capri – Italy, 15-18 April 2007 ;*
- *EGM 2010: “Adding New Value to Electromagnetic, Gravity and Magnetic Methods for Exploration: St. Giacomo Charterhouse, Capri – Italy, 11-14 April 2010*

#### CONVENOR OF NATIONAL/INTERNATIONAL WORKSHOP/SESSIONS:

- *GNGTS 2002 to 2010: “Exploration by potential methods”;*
- *GNGTS 2011- 2013: “Exploration by potential and electromagnetic fields”*
- *EAGE workshop: Electromagnetic, Gravity, and Magnetic Technologies; their impact when integrated with other geophysical and geological data; Rome 2008, June 8,*
- *EAGE 2016 workshop “Potential Fields and their Gradient Tensors in the Integrated Inversion of Geophysical Data - New Advances and Perspectives”, Wien, 2016*
- *EGU: European Geophysical Society, 2014 to 2019;*
- *ROUND TABLE “Archaeology and geophysics: University Federico II research in southern Italy” (2019)*

#### LAC MEMBER:

- *Near Surface (2004). Reviewers' committee of the conference Near Surface 2004 EAGE*
- *EAGE 2008: 70th EAGE Conference & Exhibition incorporating SPE EUROPEC 2008, Rome 2008. 9 - 12 June 2008 Rome, Italy*
- *GEOITALIA 2009, VII Earth Sciences Italian Forum, Rimini (Italy), 9-11 settembre 2009;*
- *GPR2010, XIII International Conference on Ground Penetrating Radar.*
- *GNGTS Organizing Committee: 2002 to 2014.*
- *AIQUA 2013; “L’ambiente Marino Costiero Del Mediterraneo Oggi E Nel Recente Passato Geologico. Conoscer Per Comprendere”, Napoli 19|21 Giugno 2013;*
- *EEG 2015; 21st European Meeting of Environmental and Engineering Geophysics, Torino;*
- *88° Italian Geological Society Conference, 2016;*
- *IUGG 2019;*

- *OMC 2019, Offshore Mediterranean Conference and Exhibition*
- *IGC 2020, 36th International Geological Congress*
- *OMC, 2021, Offshore Mediterranean Conference and Exhibition*
- *ReParch, Master Universitario di II Livello in restauro e progetto per l'archeologia, Università Federico II di Napoli, 2018-2019; 2019-2020.*
- *Management Committee of the Contract Agreement ENI-University Federico II of Naples*

#### MEMBER OF INTERNATIONAL SOCIETIES

- *EGU, EAGE, SEG, GNGTS.*

#### MAIN CURRENT RESEARCH TOPICS

- *Investigations on volcanic structures by SAR and seismic interferometric methods*
- *Machine Learning (supervised e unsupervised) for potential field analysis.*
- *Modeling and inversion of satellite magnetometric data*
- *Joint inversion of geoelectric and magnetometric data and gravimetric gradient*
- *Modeling of geoelectric data through the continuous wavelet transform and inversion of the integral equation*
- *Integrated interpretation of GPR data, potential fields and geoelectric data in archaeological and environmental sites;*
- *Linear and nonlinear 3D inversion of potential field data;*
- *Regional geothermal modeling;*
- *Analysis of geophysical data through continuous and discrete wavelet transforms;*
- *Multiscale methods for analysis and interpretation of potential fields;*
- *Fractal and multifractal analysis of geophysical data;*
- *Characterizing salt domes through inversion of gravity and magnetic data*
- *Joint geophysical inversion for mining environments.*

#### MAIN RESEARCH PROJECTS FUNDED BY PRIVATE AND PUBLIC COMPANIES

##### **Working Group Director:**

- **MIUR, 1998, *Evolutionary tectonodynamics of South Apennine - Calabrian Arc - Sicily orogenic system mostly based on new crop data; gravity and magnetic investigation for the study of the crustal and sub-crustal system of the central-southern Italy and of the surrounding regions of the central Mediterranean.***
- **MIUR, 2000, *Tectonics of the crust in the Central -Mediterranean Area and its evolution throughout new CROP data: Magnetic and Gravity study of the crust structure of central Italy and contiguous regions of the Central Mediterranean;***
- **MIUR, 2002 (3D lithospheric modelling for the Central Mediterranean Area, supported by recent integrated CROP data): *"The crustal structure of the Sicily and surrounding region, from gravity and magnetic data modelling";***
- **PRIN 2005; *Relazione tra geometrie e pattern deformativi superficiali e profondi in Appennino meridionale attraverso l'analisi integrata di dati geologico-strutturali, geofisici e geodetici;***
- **PRIN 2007: *Valutazione, su basi geofisiche e geologiche, della suscettibilità del territorio alla franosità indotta da eventi estremi e relativa zonizzazione.***

##### **Principal Investigator**

- **INGV- EPOT- 2003 - *Technological innovation and automation in the integrated applications of electromagnetic and potential field methods in active volcanic areas.***
- **INGV-DPC V3 - 2005- Etna - *"Identification and characterization of precursors Research Unit V3/01.***

- **INGV-DPC V3 - 2005- Structure of Vulcano, Research Unit V3/05 .**
- **Regione Campania, 2005. Regione Campania Scientific Research Project, 2005. Non destructive investigation and development of integrated geophysical methodologies to discover and evaluate the conservation state of Archeological Heritage in Pompeian Area.**
- **IAMC-CNR -2012 - Study of gravity and magnetic field anomalies in Southern Italy, in the framework of the project VIGOR;**
- **Research Project: Università di Napoli Federico II - eni S.p.A “Advanced methods for enhancement and interpretation of potential fields” , 2001-2002, GGT: method for the computation of “Full Tensor Gradient” from gravity data and related software, using DTC (Directional Tensor Components) and ISVD (Integrated Second Vertical Derivative); DWT: Localized geophysical data filtering, through the “2D Wavelet Multiresolution Analysis” and related software.**
- **Research Project : Università di Napoli Federico II - eni S.p.A - “Advanced methods for enhancement and interpretation of potential fields” , 2004-2005, ED1: 3D Derivative Euler Deconvolution and related software; ED2: Euler deconvolution of gravity/magnetic tensor and related software; MDA: Multiscale Derivative Analysis and related software.**
- **Research Project : Università di Napoli Federico II - eni S.p.A - “Advanced methods for enhancement and interpretation of potential fields” , 2006-2008, MONO Monopolar transformation of magnetic anomalies an interpretative methods and related software; AUTO SWT: magnetic and gravity data interpretation through the Continuous Wavelet Transform and related software; SPI (Interpretation of potential fields with the local wavenumber method) and related software. Research Project**
- **Research Project : Università di Napoli Federico II - eni S.p.A:-2009-2010. “New algorithms for potential field interpretation”; Multiscale method for estimating the excess mass from the estimation of the source moments and related software. Research Project**
- **Research Project : Università di Napoli Federico II - eni S.p.A:-2010-2012. “Tailored computing solutions for 3D Large scale inversion of inhomogeneous potential fields”; Homogeneous depth weighting. Inversion and related software; Focusing inversion and related software; Data-space inversion, and related software; Inhomogeneous depth weighting Inversion and related software; SFN (Singular Function Normalization) for CSEM data and related software. Research Project**
- **Research Project : Università di Napoli Federico II - Edison International S.p.A.: 2016-2017. Scientific Research Project on exploring for hydrocarbons with Gravity and Magnetic methods.**
- **Research Project: Università di Napoli Federico II - eni S.p.A : 2019-2021. Scientific Research Project on Machine Learning Algorithm for magnetic data.**
- **Research Project: Università di Napoli Federico II - eni S.p.A : 2020-2021. Scientific Research Project on “Curie isotherm modeling for geothermal studies”.**
- **Soprintendenza per i Beni Archeologici per le Province di Salerno, Avellino e Benevento: Integrated Geophysics research (GPR, magnetics, geoelectrics ed elettromagnetics) in the Pontecagnano – Faiano (SA) Archaeological Park;**
- **Integrated Geophysics research (GPR, magnetics, geoelectrics and elettromagnetics) in the archaeological park of Fratte (SA);**
- **Fondi Misura 3.16 – P.O.R. Campania 2000/2006. Acquisizione ed elaborazione dati GPR, EM, Mag e GPS nell’area archeologica di Stabiae per l’individuazione di strutture archeologiche sepolte - Castellammare di Stabia (NA) GPR survey for the Matera Cathedral.**
- **IDOME: Convenzione di ricerca DIARC-DISTAR (University of Naples Federico II) per rilievi geofisici (intra/estradosali) della cupola della Chiesa di Santa Caterina a Formiello in Napoli.**
- **Comune di Marina di Lesina (2008). “Indagini geofisiche per l’individuazione di probabili cavità sotterranee per la messa in sicurezza del territorio comunale in località Marina di Lesina (FG)”. Finanziato presso il Centro di Competenza INNOVA. Research Project**
- **GPR research in an archaeological site in Bacoli (NA). Research Project**
- **ENHANCING POMPEII (2017). Magnetometric, GPR, resistivity and EM survey in the Insula Occidentalis, Pompei, University of Naples Federico II.**

***Principal Investigator***

See: <https://scholar.google.it/citations?user=X4jSf5kAAAAJ&hl=it>