NICOLA TOSCHI, PhD

Full Professor of Medical Physics | University of Rome "Tor Vergata"

Head, Medical Physics Section • Head, PhD Curriculum in Medical Physics, Neuro-technologies & AI

Associate Investigator, Athinoula A. Martinos Center for Biomedical Imaging, Harvard Medical School

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RESEARCH PROFILE

Interdisciplinary medical physicist focusing on advanced neuro-imaging, neuromodulation, nanomedicine and AI for precision health. Author of 250+ peer-reviewed papers (h-index > 50, > 8 000 citations). Secured & led large-scale international consortia; mentor to 60+ trainees across six countries.

EDUCATION & TRAINING

Year	Degree / Training	Institution	Field
2006-2010	Specialization (4-yr), Medical/Health Physics	Univ. Rome "Tor Vergata"	MRI & neuro-stimulation
1998-2001	PhD, Natural Sciences (Dr. rer. nat.)	LMU / Max-Planck-Institute, Munich	Computational neuro-physics
1995-1999	Laurea, Physics (cum laude)	Univ. Rome "Tor Vergata"	Medical physics
1995-1996	MSc, Mathematical Modelling (Distinction)	Univ. Oxford	Applied mathematics
1992-1995	BSc, Physics (1st Class Honours, ARCS)	Imperial College London	Physics

KEY ACADEMIC & PROFESSIONAL APPOINTMENTS

Years	Role	Institution

2023-present	Full Professor of Medical Physics	Univ. Rome "Tor Vergata"
2018-present	Research Staff / Associate Investigator	Martinos Center, Harvard Med.
2015-2023	Associate Professor of Medical Physics	Univ. Rome "Tor Vergata"
2013-2015	Visiting Assistant Professor of Radiology	Harvard Med.
2008-2015	Assistant Professor of Medical Physics	Univ. Rome "Tor Vergata"

FUNDING & PROJECT LEADERSHIP (AGGREGATED)

- Principal / Co-PI: > €15 million + > US $5 million
- Consortium partner / task lead: > €60 million
- Representative current projects:
    - CROSSBRAIN (PI, €4.07 M): Federated neuromorphic nanomaterial actuation.
    - BRAINSTORM (Co-PI, €3.04 M): Wireless deep-brain magnetic nano-stimulation.
    - BRAINFEDERATION (PI, €1.58 M): Cell-selective neuromodulation via nano-electronics.
    - DIADEMA (Co-PI, €0.99 M): AI workflow for dementia imaging.
    - Multiple NIH/DOD awards on micro-structural MRI & chronic pain (>$4 M).

SUPERVISION & TEACHING (SELECTED METRICS)

- PhD students – 27 (11 graduated, 16 active)
- Postdocs / RTD fellows – 12 (6 current)
- Under-/Post-graduate theses supervised – 40+
- Curriculum / programme headships – PhD in Medical Physics & AI; Specialization School in Medical Physics.
- Teaching portfolio – Physics, AI, MRI, signal processing across Medicine, Dentistry, Engineering (20+ distinct courses).

SELECTED HONOURS & SERVICE

- Grünenthal Prize for Pain Research (2021)
- Top Italian Scientists list (since 2019)
- Best Paper/Poster awards – ISMRM, AIRMM, ESGCO (2015-19)
- Editorial boards – Computer Methods & Programs in Biomedicine, Brain Sciences, Frontiers (5 sections)
- Grant-review panels – ERC, Horizon Europe, NIH, MRC-UK, ANR-France, ERA-PerMed.
- Conference organisation – Chair/associate editor, IEEE EMBC (annual), ESGCO, national AI & MRI symposia.

SELECTED INVITED TALKS (LAST 5 YRS)

Year	Talk
2024	"AI in Diagnostic Imaging" – National Italian Research Council, Rome
2024	"Graph DL for Neural Data" – Int'l School on Neuro-Engineering, Genoa
2023	BigMS Workshop – "Machine Learning in Real-World Evidence", Bari
2022	EAN Congress – "AI for MRI Analysis", Vienna
2022	Italian Assoc. Neuroradiology – "Principles of AI in Neuroradiology", Rome

TECHNIQUES & EXPERTISE

MRI & hybrid PET/MRI • Diffusion & micro-structural imaging • Focused- & Low-Intensity Ultrasound • Nanomaterial design & toxicology • Real-time physiological signal processing • Deep learning (CNN, GNN, SNN) & federated AI • High-performance & neuromorphic computing • Translational clinical trial design.

Full publication list and detailed portfolio available on request.