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Partner search su bando PRIN 2026 HYBRID

scadenza 4 giugno 2026

Ricerca-partner accademica relativa al bando PRIN 2026 HYBRID promossa dal **prof. Gianpaolo Ruocco - professore associato del Dipartimento di Ingegneria dell'Università degli Studi della Basilicata** - che sta costruendo un partenariato nazionale sul tema dei "Digital Twins in ambito sanitario".

L'idea progettuale riguarda lo sviluppo di un framework avanzato di:

- modellazione computazionale biomatematica
- integrazione di dati clinici e diagnostici
- simulazione della risposta terapeutica
- validazione clinica su dataset reali

👉 In aggiunta un breve *executive summary* con maggiori dettagli sull'impostazione scientifica e sugli obiettivi della proposta

👉 Vincoli di eleggibilità

Il bando prevede la partecipazione esclusiva di università ed enti vigilati dal MUR (min. 4 – max. 6 unità)

👉 Non sono previsti partner industriali come beneficiari diretti

👉 Competenze di interesse:

- modellazione e metodi matematici
- HPC / simulazione / ingegneria computazionale
- data science / AI / integrazione dati
- imaging medico e analisi quantitativa
- ambito clinico (per validazione)

Se interessati, potete inviare direttamente una e-mail al prof. Gianpaolo Ruocco al seguente indirizzo: gianpaolo.ruocco@unibas.it e per copia conoscenza all'ing. Nicola Lanzaro <nicola.lanzaro@enea.it>

ONCO TWIN

Executive Summary – PRIN 2026 HYBRID Proposal

This project directly addresses the strategic vision of PRIN 2026 HYBRID by tackling a critical challenge in modern healthcare: the *development of predictive, patient-specific oncology through the structured integration of mathematical modeling, computational engineering, and clinical practice*.

At its core lies a strong, synergistic collaboration between the University of Basilicata and the IRCCS-CROB, forming a translational research environment where theoretical innovation and clinical validation are tightly coupled. This partnership enables the development and rigorous assessment of a new paradigm in oncology: mechanistic, model-driven prediction of tumor evolution and therapy response.

The primary scientific objective is to establish and validate a computational framework that integrates clinical data and diagnostic imaging into advanced biomathematical models. These models are designed to simulate personalized tumor growth dynamics and therapeutic response, with particular emphasis on neoadjuvant treatment settings.

The proposed approach represents a decisive shift beyond conventional statistical and data-driven methodologies. Rather than relying solely on retrospective cohort stratification, the project aims to construct mechanistically grounded “digital oncological twins,” capable of prospectively exploring treatment scenarios and supporting clinical decision-making through physiologically consistent simulations. This unfolds a deeper understanding of tumor behavior while offering a quantitative basis for optimizing treatment timing, dosage, and sequencing.

The project stands out along three key dimensions:

- **Methodological Innovation:** A novel modeling philosophy transforming real-world clinical data into patient-specific predictive tools.
- **Translational Validation:** Direct validation on retrospective and prospective clinical datasets provided by IRCCS-CROB, focusing initially on solid tumors.
- **Hybridization of Knowledge:** A fully interdisciplinary framework combining expertise in applied mathematics, computational engineering, and clinical oncology, in line with PRIN HYBRID principles.

The expected impact is substantial. Scientifically, the project will advance the state of the art in mechanistic oncology modeling and contribute to the emerging field of Virtual Human Twins. Systemically, it will strengthen Italy’s position in high-impact biomedical research. Clinically, it lays the groundwork for next-generation decision-support systems that can improve treatment efficacy, reduce toxicity, and enhance sustainability in healthcare.

In essence, the proposal builds a concrete bridge between theory and clinical practice, embodying the HYBRID vision: *deep integration of disciplines to generate high-impact knowledge and transformative innovation in healthcare*.