SCHEDA PER PROPOSTA DI ATTIVAZIONE/PROROGA CONTRATTO RTDA

Dipartimento	Dipartimento di Fisica

	Referente Scientifico (proponente)
Nome e cognome	**Enrico Tassi**
Settore Concorsuale referente	**02/A1**
SSD referente	**FIS/01**
Settore Concorsuale RTDA	**02/A1**
SSD RTDA	**FIS/01**
Tempo Pieno/Definito	**Tempo Pieno**

	Proposta scientifica
Progetto PNRR di riferimento	**CN_00000013 - Centro Nazionale HPC, Big data & Quantum Computing - Italian Center for Super Computing (ICSC)**
Spoke nell'ambito del Progetto	**Spoke 2**
Titolo della ricerca	**ML- and AI-inspired algorithms, codes and computational strategies in experimental particle physics**
Attività di ricerca	**We are seeking for a passionate and talented scientist who wants to drive the development of next-generation and cutting-edge machine learning and AI-inspired algorithms, codes and computational strategies in experimental particle physics and related applications. The activity of the successful candidate will be integrated in the Spoke 2 of the recently established Italian Center for Super Computing (ICSC) and will focus on one or more of the following research areas:** **- Experimental High Energy Physics: selection, data reduction, simulation and reconstruction algorithms (either via explicit programming or large-scale Machine Learning solutions) for HEP experiments (LHC, Future Colliders, KEK, IHEP, neutrino experiments...), with applications ranging from innovative triggers to distributed analysis techniques;** **- Boosting the computational performance of Experimental Physics algorithms: porting of applications to GPUs and heterogeneous architectures (e.g., scalability of scientific codes and applications on GPU/CPU many-cores clusters, local and remote offloading, mission-critical algorithms on FPGAs, ...).** **- Architectural Support for Experimental Physics Data Management on the Distributed ICSC infrastructure: support for the adaptation of existing applications on the data-lake distributed infrastructure, and via innovative computational models (for example long-term data preservation, streaming access to data, tiered storage solutions, ...).** **The implemented solutions will be tailored to the needs of the other scientific domains in the Centre and also to all academic and industrial realities where needs to access distributed computing and large amounts of data exist.** **If you would like to know more about the role kindly contact the responsible recruiter:** **Prof. Enrico Tassi (enrico.tassi@unical.it)**

	Profilo scientifico del ricercatore da selezionare
N. massimo di pubblicazioni da presentare	**12**
Standard minimi di qualità	**- PhD in experimental particle physics** **- Proved experience in Python and C++ programming and in the development of ML- and AI-inspired algorithms**
Lingua straniera	**English**
Criteri di scelta del candidato idoneo in ipotesi di ex aequo	**None**