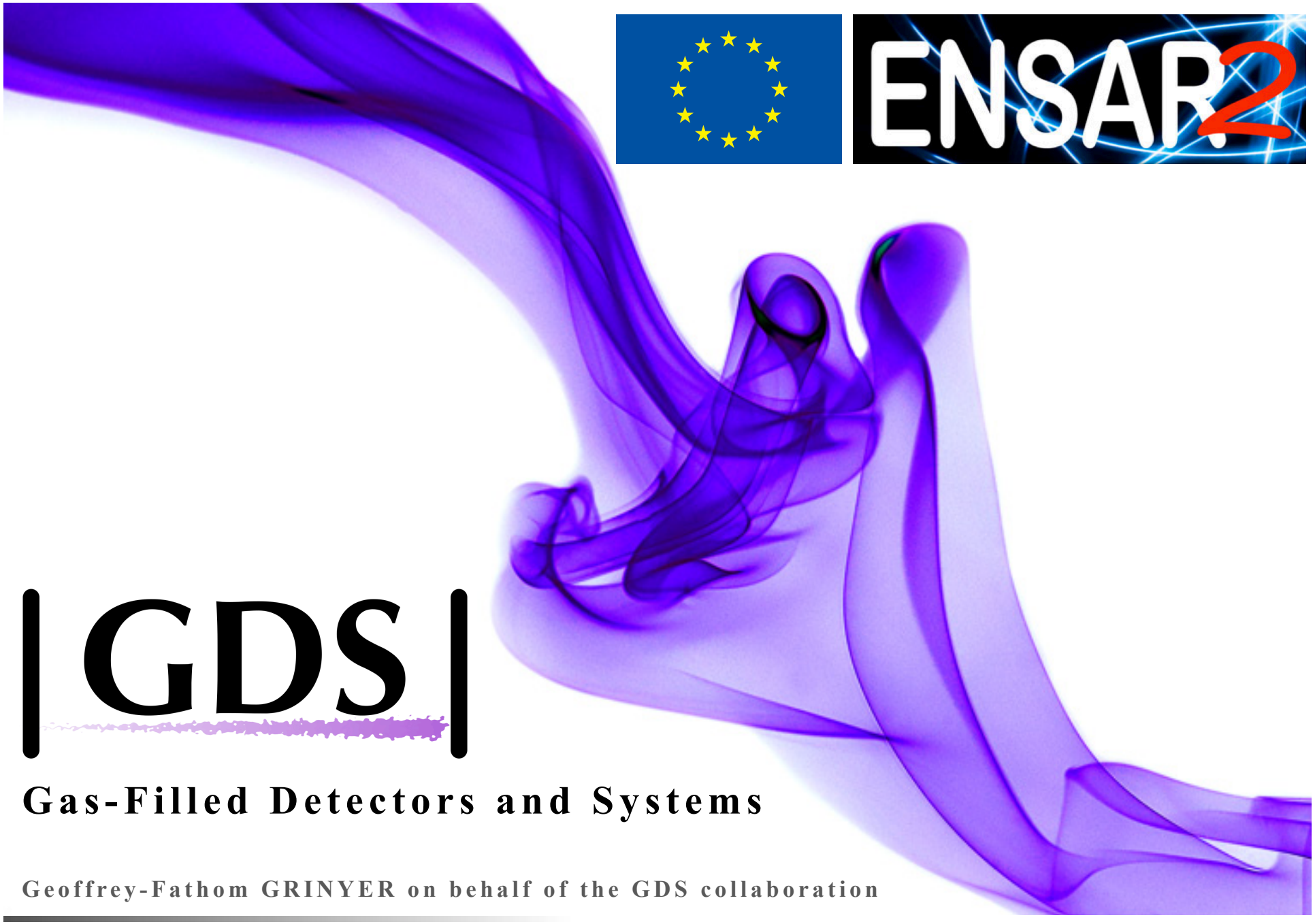


GDS

Gas-Filled Detectors and Systems

Geoffrey-Fathom GRINYER on behalf of the GDS collaboration

What is ENSAR2?

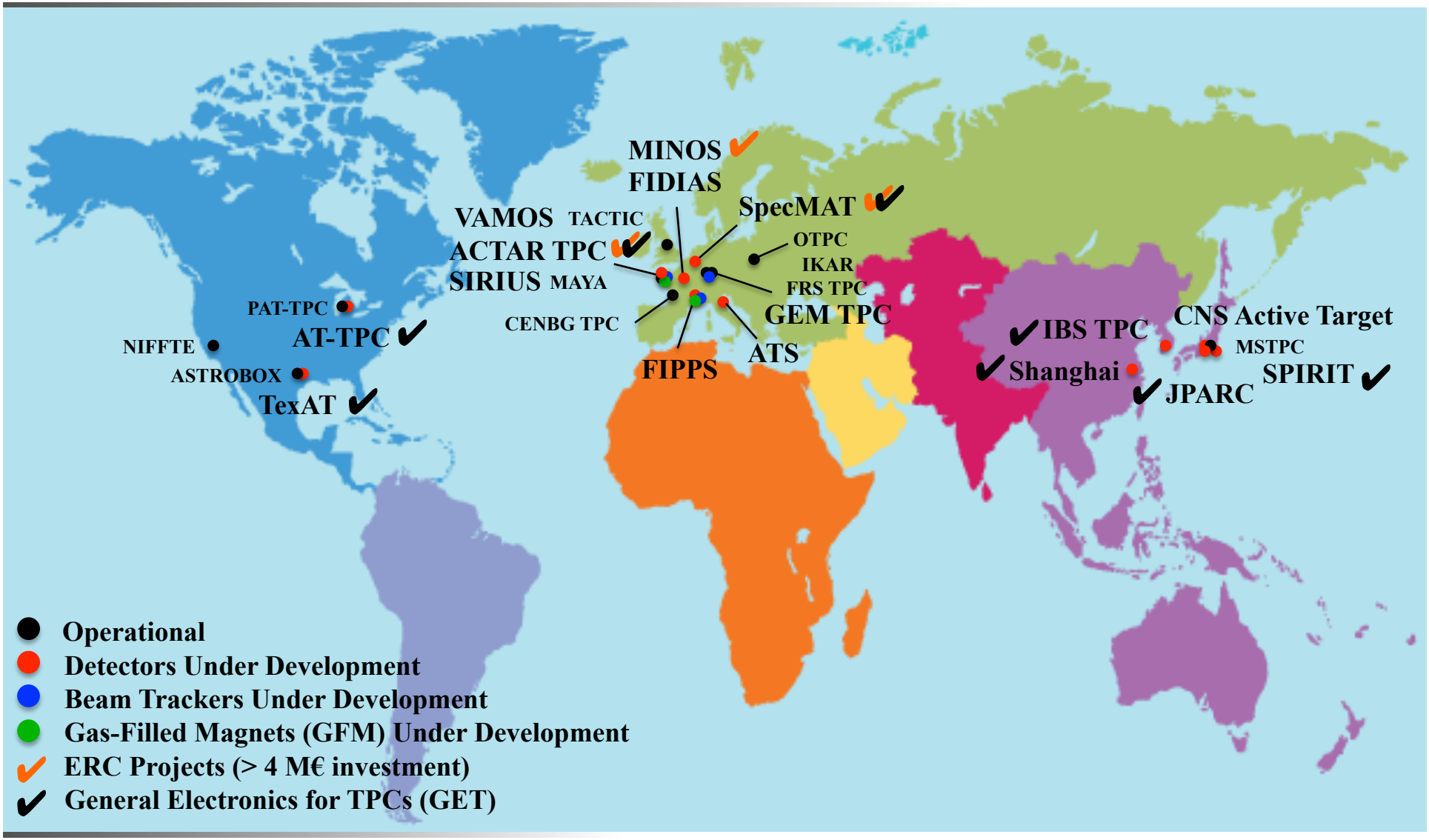
- **European Nuclear Science and Applications Research 2**
  - **ENSAR2 is a European project that is the integrating activity for European nuclear scientists in nuclear structure, nuclear reactions and applications of nuclear science**

- **The ENSAR2 core mission**
  - **Provide access to existing European infrastructures (experiment and theory)**
  - **Scientific coordination and developments related to the infrastructures**

- **ENSAR2 work packages**
  - **10 TNA: Trans National Access (~ 50%) – travel support to EU infrastructures**
  - **7 JRA: Joint Research Activities (~35%) – equipment and personnel for R&D**
  - **8 NA: Networking Activities (~15%) – travel support for meetings and workshops**

- **ENSAR2 Statistics**
  - **Duration: 4 years (beginning March 2016)**
  - **Budget: 10 M€**
  - **Partner institutions: 30**

GDS in Nuclear Physics Today



GDS: A Network for ENSAR2

- **The need for a European GDS community**
  - **GDS are planned or being constructed at virtually every nuclear physics facility**
  - **Applications: Active Targets, TPC's, gas-filled separators, trackers, beam monitors, …**
  - **Many state-of-the-art GDS projects are already funded**
  - **Key improvements identified that would improve functionality and extend applicability**

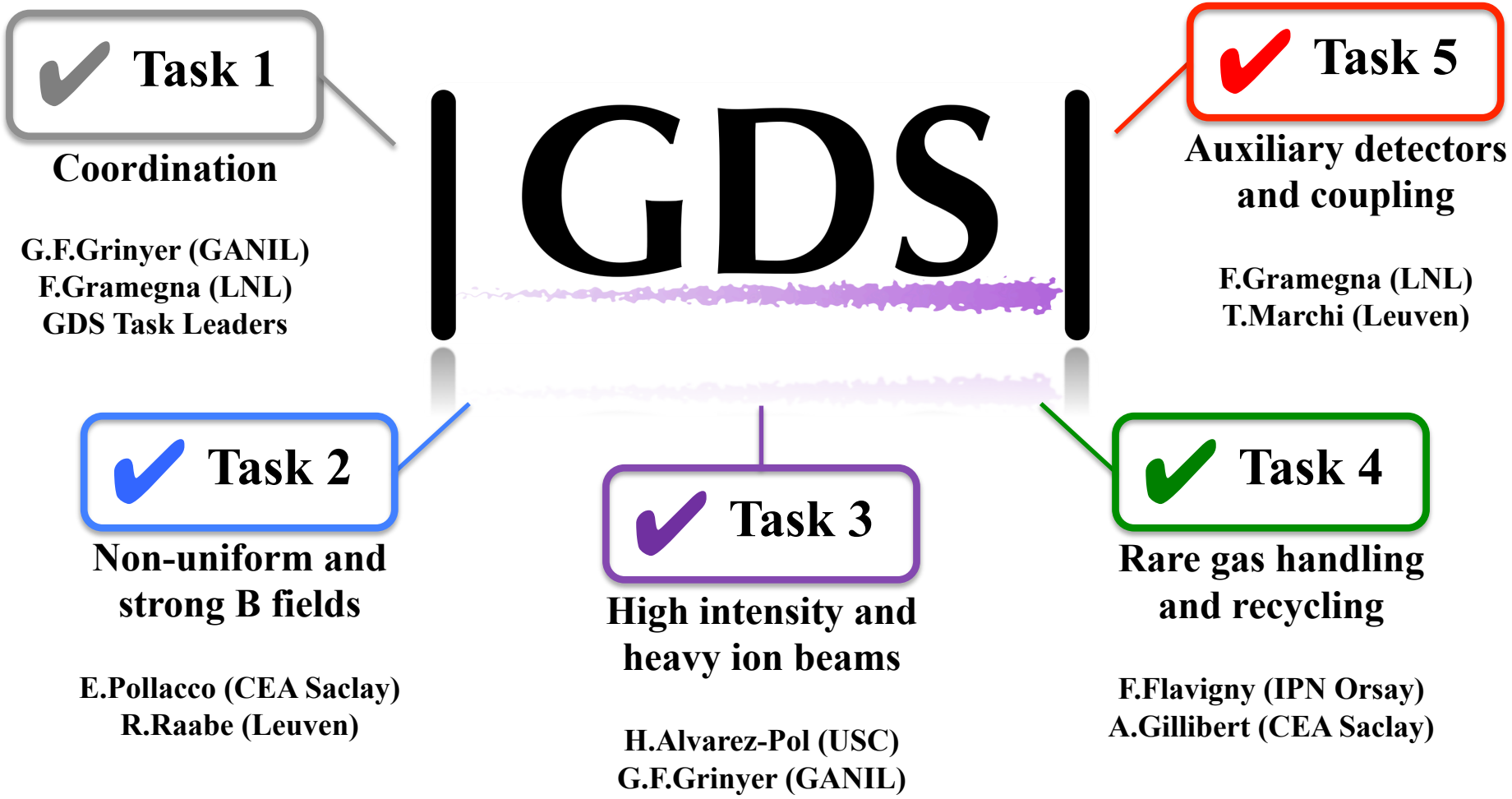
- **Combine our expertise and knowledge to address present-day GDS challenges**
  - **New detector technologies, electronics, simulations – the field is moving very quickly**
  - **Knowledge sharing will benefit all future facilities (SPIRAL2, GSI, ISOLDE, LNL, …)**
  - **A networking activity within ENSAR2 is extremely relevant and timely**

- **Collaboration brings together experts in GDS, high-density electronics and DAS**
  - **Open to anyone interested in or working with gas-filled detectors and systems**
  - **We are 16 institutes from 9 European countries**
  - **We are > 55 scientists, engineers, and researchers**
  - **And growing!**

GDS: Present-Day Challenges

- **Strong and non-uniform B fields (4-5T)**
  - **Ultra-high dynamic range**
  - **Large volume for TPC + electronics**
- **Intense and heavy beams**
  - **Significant space charge effects**
  - **Loss of gain, efficiency & sparking**
- **Rare gas handling and recycling**
  - **No ^{3}He capabilities**
  - **New gases and gas mixtures**
- **Auxiliary Detectors for GDS**
  - **Particle, neutron and γ-ray detection**
  - **Operation in gas, strong magnetic fields**
  - **Electronics and coupling**

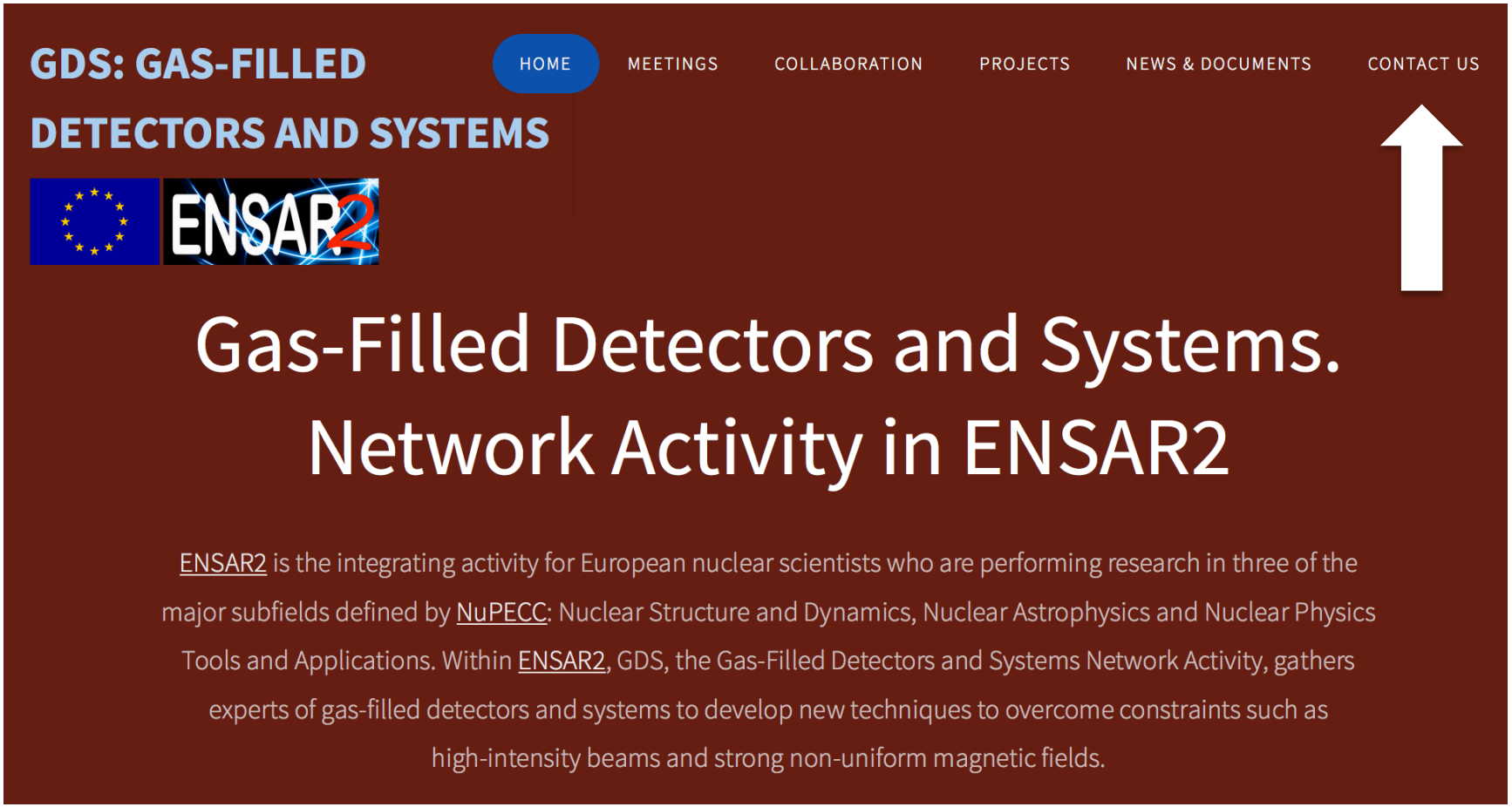
GDS: Organization and Goals



- **Deliverables: Annual GDS topical meetings for Tasks 2 through 5**

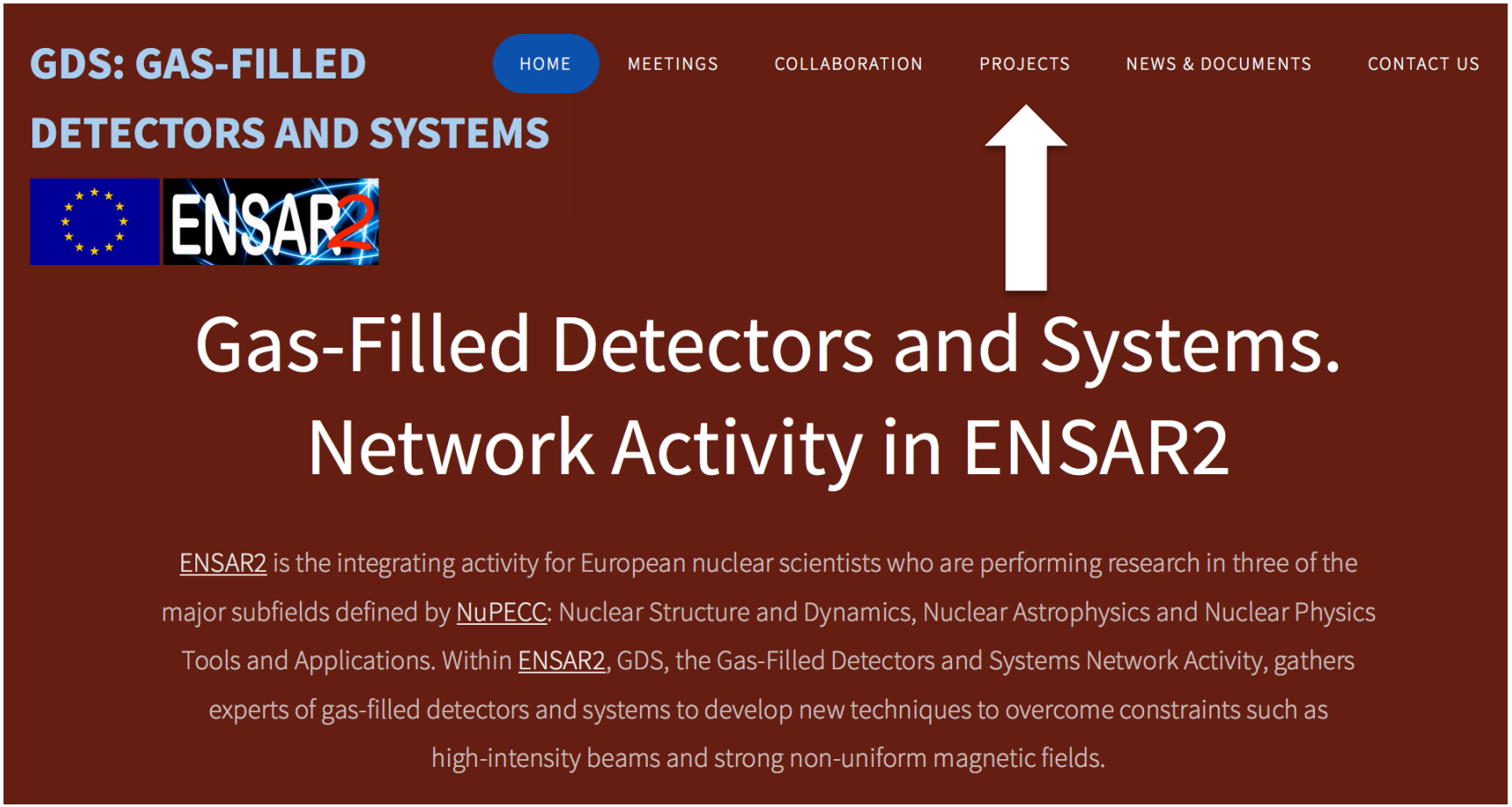
GDS Collaboration Website

- **Visit our website and join the GDS community: http://igfae.usc.es/gds/**
  - **Provide your email address to receive information from GDS and ENSAR2**



GDS Projects Page

- **Projects Page: http://igfae.usc.es/gds/projects**
  - **Put your project information and links to your projects website here**



Topical Meeting 2017

- **GDS coupling to auxiliary detection systems**
  - **GDS projects (ongoing and new)**
  - **Charged particle detectors**
  - **Gamma-ray detectors**
  - **Electronics and coupling**
  - **Simulation frameworks**

- **Statistics**
  - **52 participants from 9 countries**
  - **24 presentations**

- **Contact us**
  - **Email:** gds_ensar2@ganil.fr
  - **Web:** http://igfae.usc.es/gds/

- **Thank you and welcome to Legnaro!**