**TF1-gaseous detectors Questionnaire**

**Questions on national strengths (equal to all TFs):**

1. Areas of particular national strength or of minimal **significant activity** within the topics covered by the Task Force 1 Gaseous Detectors
2. Current national **plans for strategic investment** relevant to this Task Force area
3. Significant **opportunities for seeking future resources**, particularly (though not only) through European schemes (also in synergy with other science areas) that should be considered when highlighting R&D priorities

**Specific questions related to TF1 topics:**

Please let us know:

1. If there are **topics not covered** in the proposed TF1 Symposium agenda
2. For a given topic in the agenda the **R&Ds you think are particularly relevant** for your community and for which future application
3. Any **suggestions to facilitate** detector R&D on the international level

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ECFA Detector R&D Roadmap TF1 Gaseous Detectors Symposium on April 29th Symposium will cover the following topics:

1. **Technologies: overview, limitations and perspectives.**

* MPGD: GEM, Micromegas, THGEM, uRWELL, and other ongoing developments
* RPC, MRPC, and other ongoing developments,
* Drift chambers, straw tubes, TGC, CSC, and other wire chambers
* PID: TPC, TRD, RICH and other large area detectors

1. **Future applications.**

* Tracking and muon detection at future colliders
* TPCs at future lepton and lepton-hadron colliders (TPCs, drift chambers, large volume gaseous detectors)
* Nuclear physics applications (tracking, extremely low mass detectors, photon detection, TRD, neutron detection)
* Recoils imaging for DM, neutrino, and BSM physics applications (TPCs variations, optical readout)
* Semi-digital calorimetry (RPC, MPGD) at future colliders

1. **Challenges and new developments.**

* Detector stability (ageing, discharge issues) and rate capability: resistive electrodes
* Novel readout electrodes, optical readout, hybrids with ASICS
* Precise timing detectors
* IBF, photocathode stability and alternatives (including solid converters and nanotech)
* Precision manufacturing techniques (electrical and mechanical properties of detector components), additive manufacturing and new materials (low mass, radio-purity)
* Eco gas mixtures and mitigations procedures for GHG gas (recirculation, recuperation etc.)

1. **Development tools and R&D environment.**

* Electronics (front-end and DAQ) for gaseous detectors R&D
* Software tools for detector physics simulations
* Infrastructures – development, testing and production facilities
* Relations with industry
* Networking – collaborations, technology dissemination and training

1. **Applications beyond fundamental research.**