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## **Development of Micro-Pattern Gas Detectors for next-generation Active Target and Time Projection Chambers**

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With the advent of modern facilities dedicated to radioactive beam production, Active Target Time Projection Chambers have become key instruments for nuclear spectroscopy studies. These detectors provide unprecedented luminosity, enabling direct reaction measurements with beam intensities as low as a few hundred particles per second. The IGFAE, at the University of Santiago de Compostela, is actively involved in the development and operation of several active targets and advance detectors, including the AT-TPC at FRIB, the NEXT detector at the Canfranc Underground Laboratory (LSC), and a next-generation Optical Time Projection Chambers (OTPC). This contribution presents the main features and capabilities of these detectors, as well as recent developments achieved in the last years.

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