AIDA-2020
WP2: Innovation & Outreach

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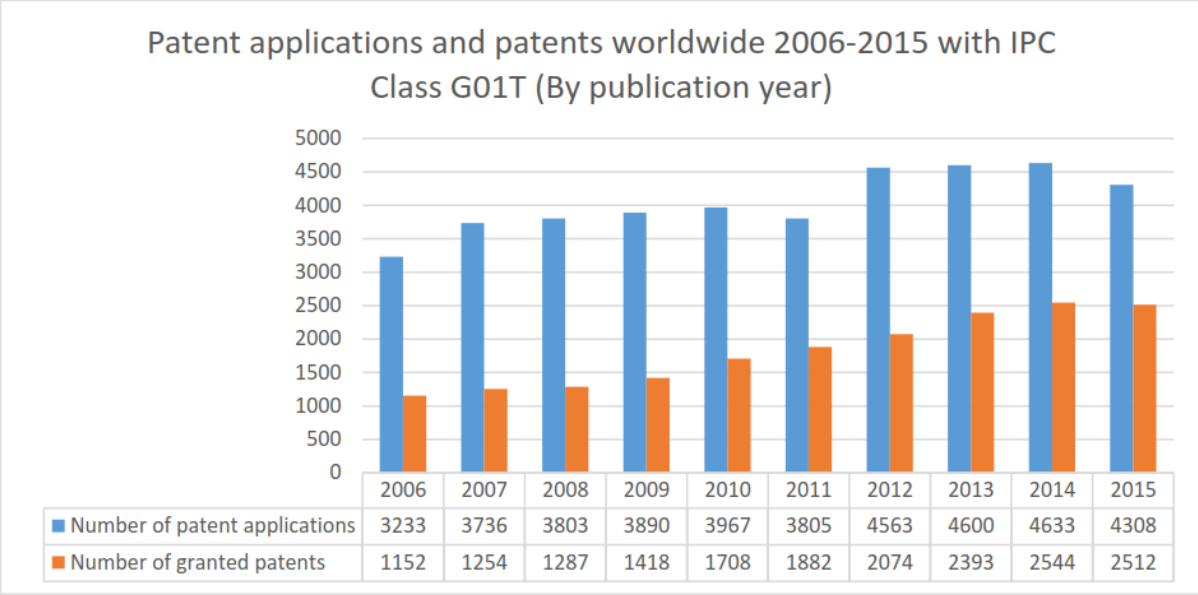
Objectives

- Scientific Coordination
- Communication, dissemination and outreach
- Industrial relations and technology transfer
- Management of the Proof-of-Concept (PoC) fund
- Pre-industrialisation of large area silicon detectors

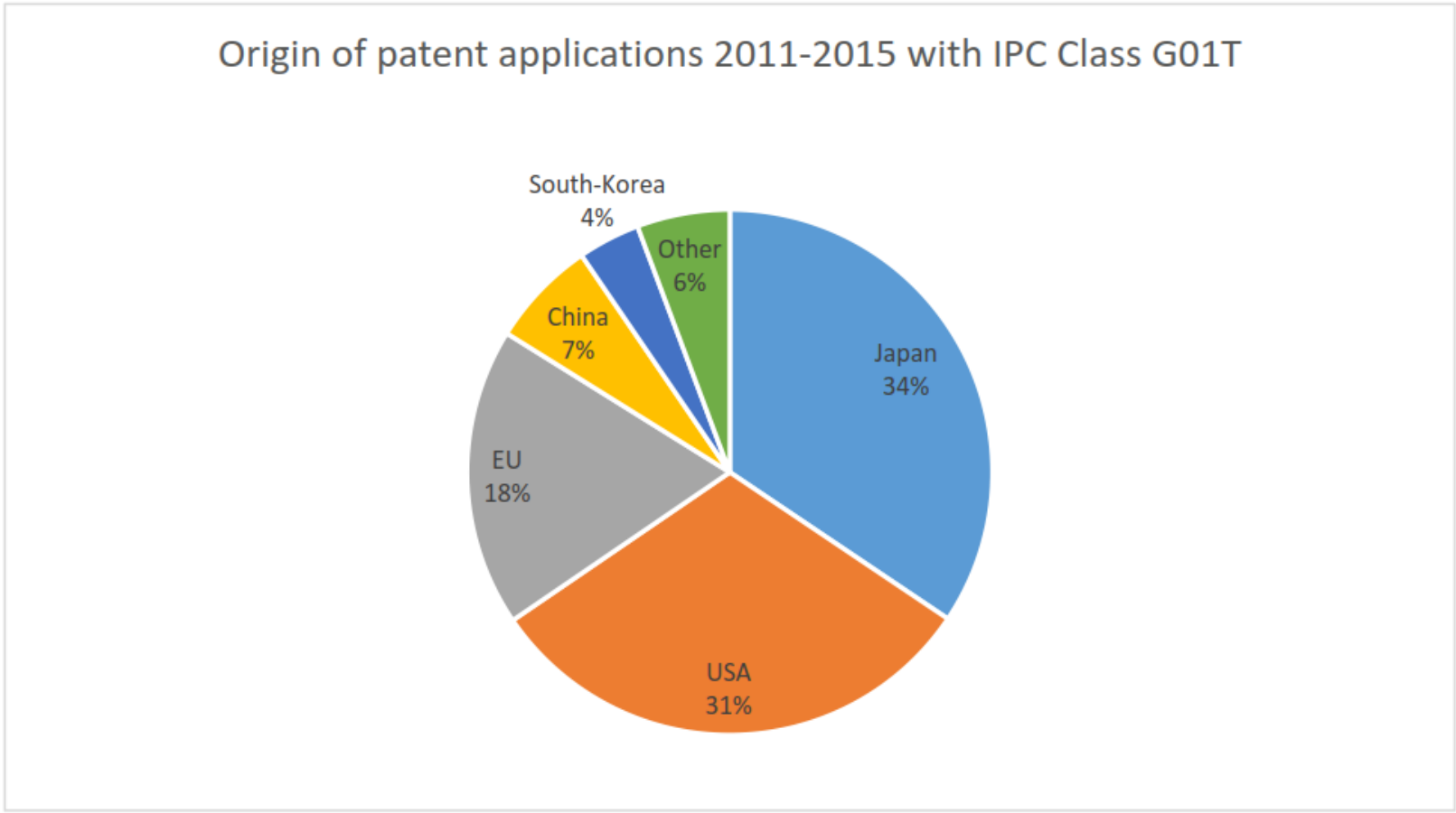
Task 2.3 Industrial relations and technology transfer

- Key technological areas (identification of technologies for potential transfer to industry)
  - Technology landscape: correlation patents-R&D
  - Data set and tools: Thomson Innovation and Intellixir
  - 57 technologies identified



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Number of patent applications	3233	3736	3803	3890	3967	3805	4563	4600	4633	4308
Number of granted patents	1152	1254	1287	1418	1708	1882	2074	2393	2544	2512

Task 2.3 Industrial relations and technology transfer

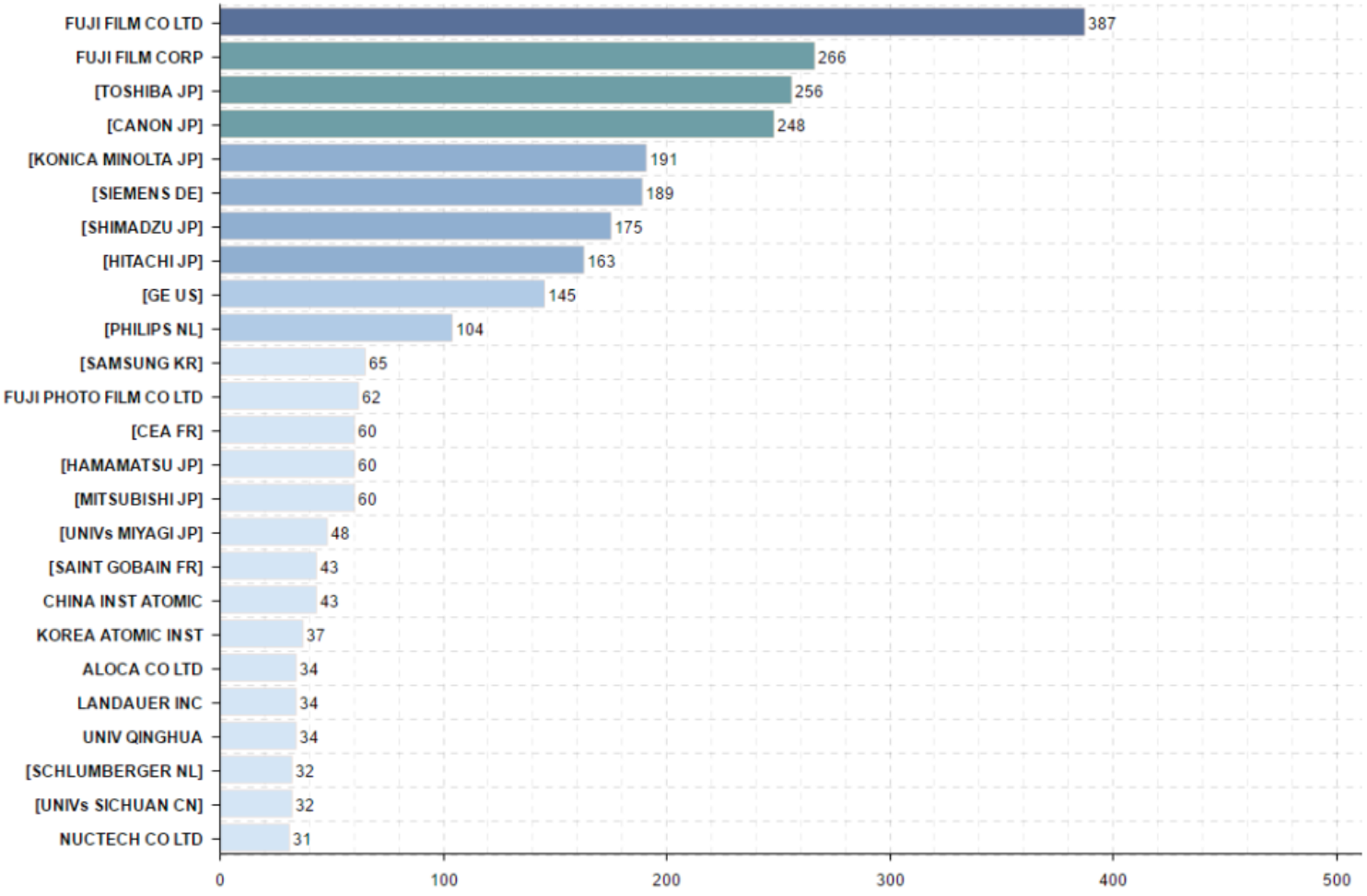


Task 2.3 Industrial relations and technology transfer

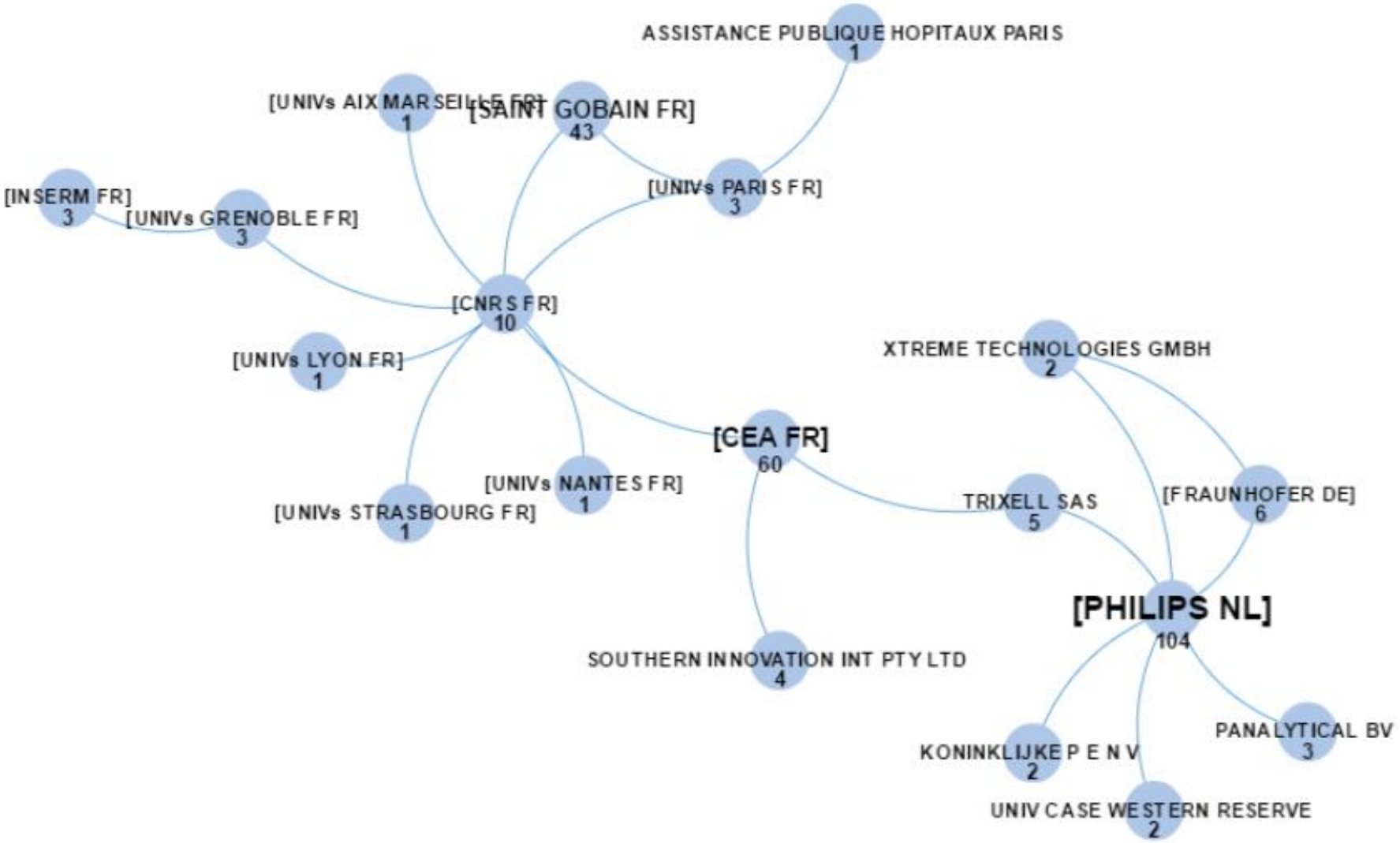
R&D Area	**Proportion of patent applications 2011-2015**
Scintillator-based detectors	G01T1/20 1,557
Application in particle therapy	A61B6/00 1,279
Application in radiation monitors	G01T7/00 1,179
Semiconductor-based detectors	G01T1/24 950
Application in nuclear medicine	G01T1/161 843
General detector R&D	G01T1/00 609
Application in beam monitoring	G01T1/29 545
Detector circuitry design	G01T1/17 530
Application in Computerized Tomography (CT)	A61B6/03 481
Measurement of radiation intensity	G01T1/16 461
Semiconductor technology	H01L27/146 440
Imaging	H04N5/32 416
Application in dose measurement	G01T1/167 393
Application in material analysis / scanning	G01N23/04 358
Crystal-based detectors	G01T1/202 333

Task 2.3 Industrial relations and technology transfer

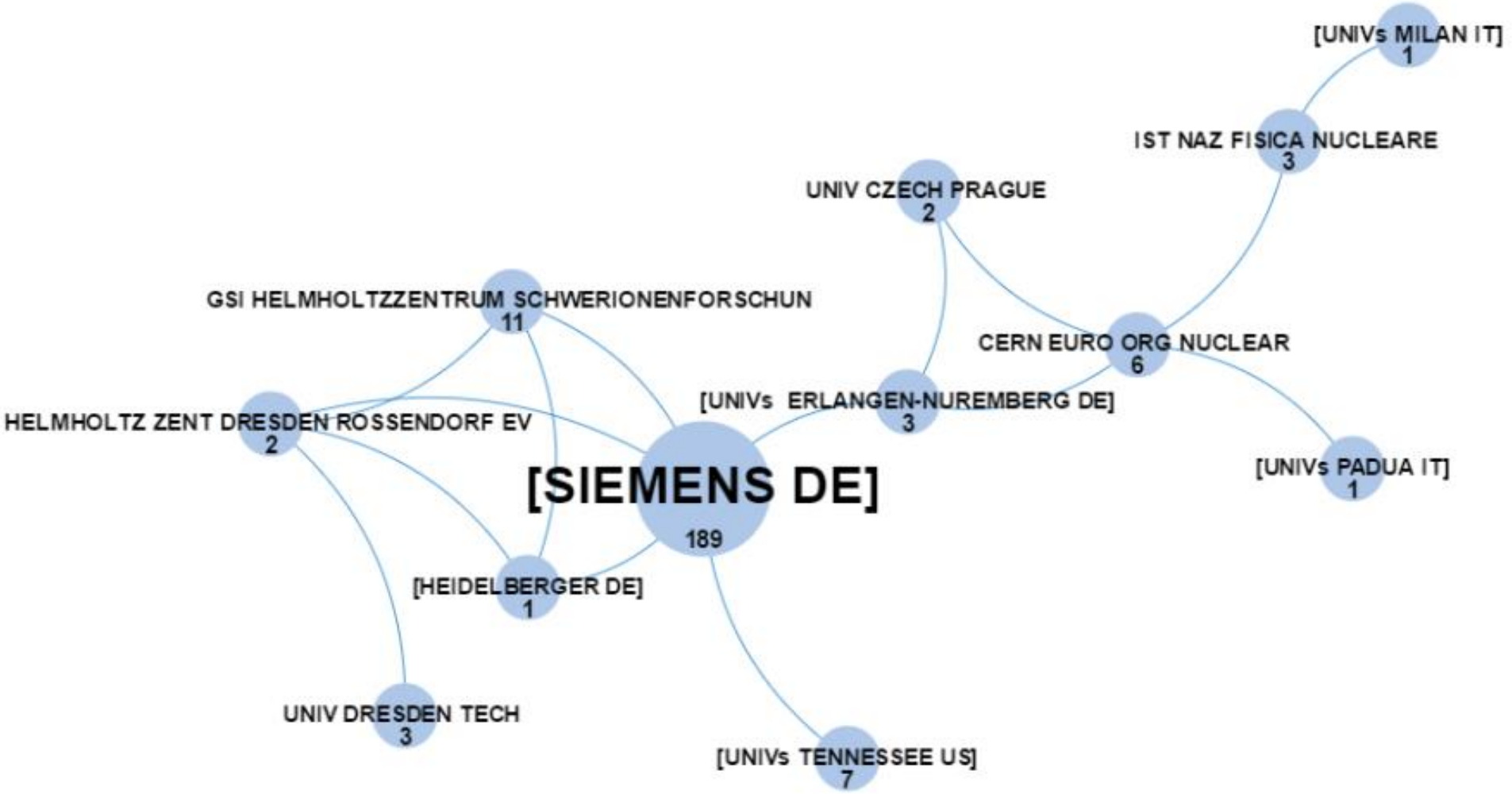
Top 25 applicants for patent applications worldwide 2011-2015



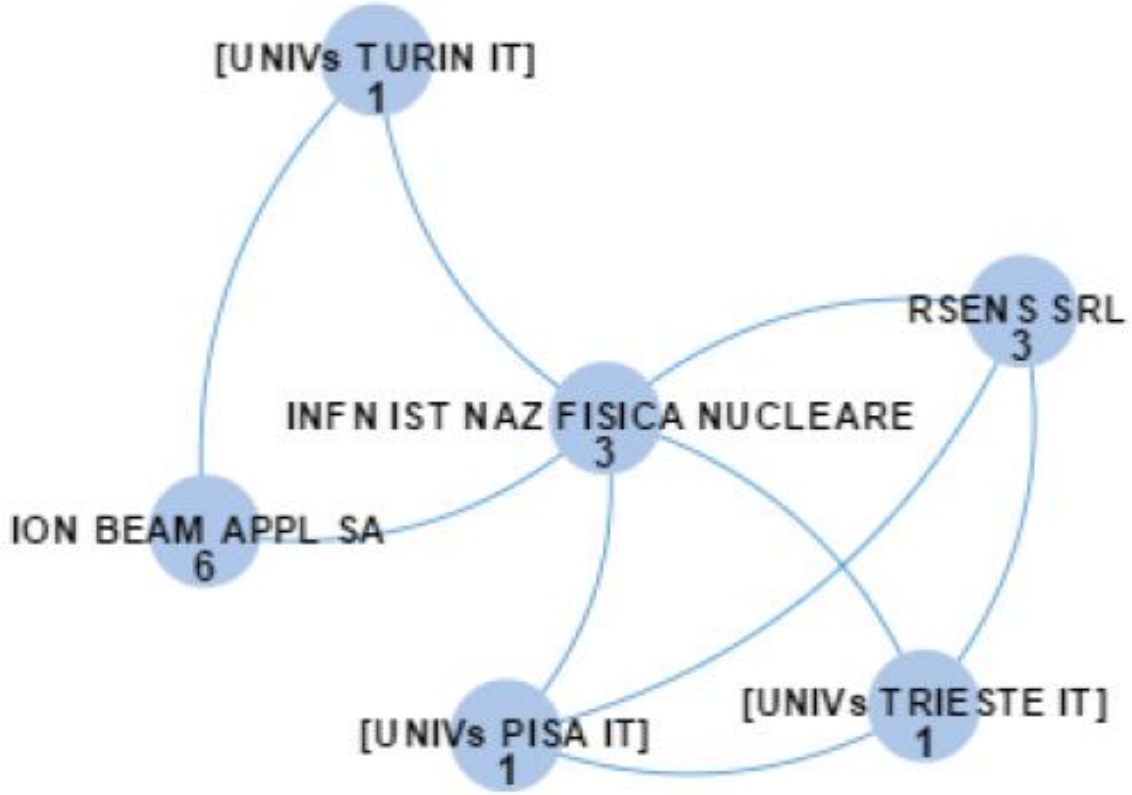
Task 2.3 Industrial relations and technology transfer



Task 2.3 Industrial relations and technology transfer



Task 2.3 Industrial relations and technology transfer



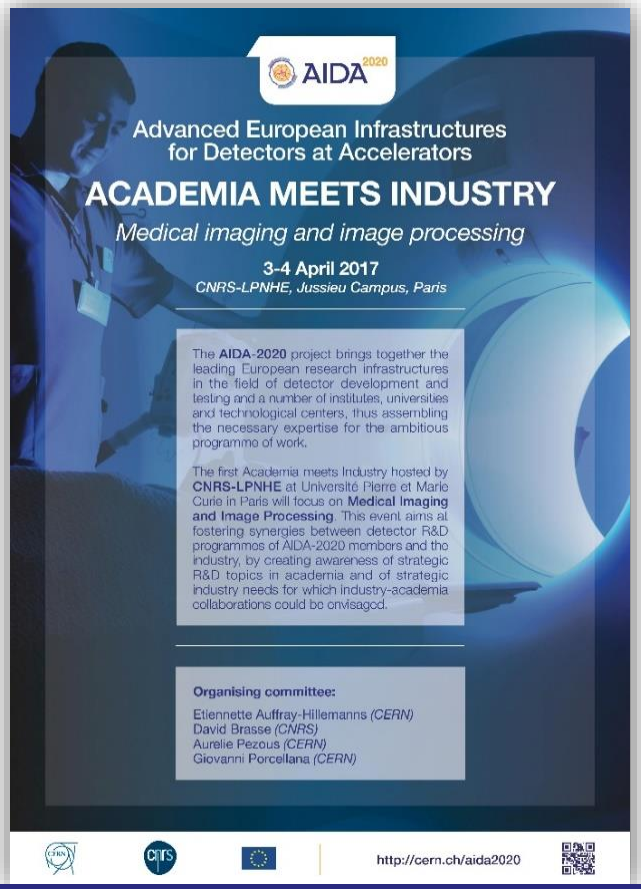
Task 2.3 Industrial relations and technology transfer

- Understand who is working with who:
  - Industrial partnership
  - Academia-Industry

- List of EU companies active in detectors

Task 2.3 Industrial relations and technology transfer

- Academia meets Industry-Key elements:
  - 17 speakers:
    - 7 from industry
    - 10 from academia
  - 5 companies with a booth
  - 60 participants



Task 2.3 Industrial relations and technology transfer

- Major topics:
  - Scintillators
  - PET/MRI/CT
  - Machine learning
  - Data treatment

Task 2.4 Management of the Proof-of-Concept (PoC) fund

- Objectives of PoC:
  - General field of detector development
  - Collaborative project industry oriented
  - Bringing technologies closer to the market

→ **Impact beyond high energy physics**

Task 2.4 Management of the Proof-of-Concept (PoC) fund

- 11 valid proposals received
- Evaluation Panel meeting 25/11/2016
- Interview of the 5 highest ranking projects 14/12/2016
- 3 projects funded:

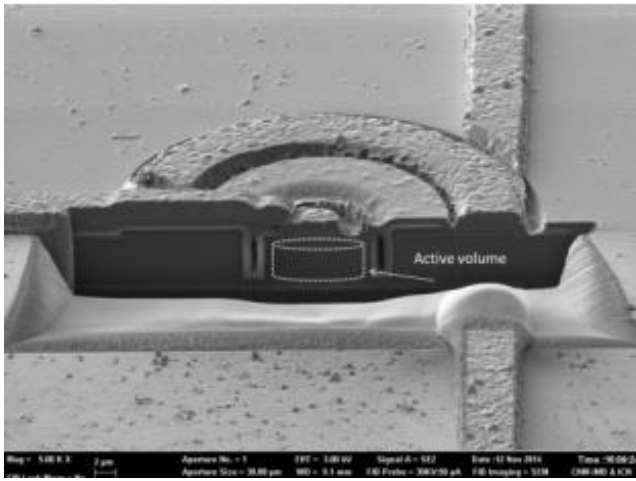
Budget €	Title	Lead Institute	Partners
45,600 €	Silicon-based Microdosimetry System for Advanced Radiation Therapies	Instituto de Microelectronica de Barcelona	
74,825 €	Advanced Through Silicon Vias for Pixel Detectors	University of Bonn	Fraunhofer IZM
66,641 €	RaDoM	CERN	Politecnico di Milano, Mi.am

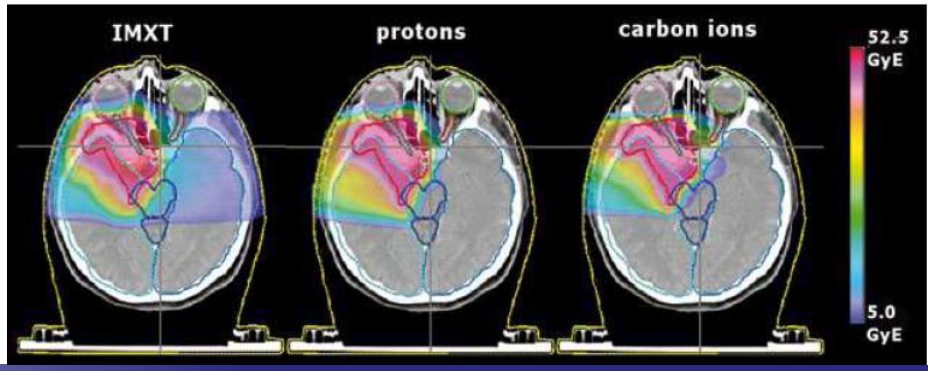
AIDA 2020 Silicon-based Microdosimetry System for Advanced Radiation Therapies

- Sensors fabrication is a 1st step
- Should be integrated with pTDC

- Application outside HEP:
  - Medical application-hadron therapy

- Tech transfer options:
  - Licence the product to industry
  - Create a spin-off





Advanced Through Silicon Vias for Pixel Detectors

- TSV on HEP detectors are ongoing developement
- Stabilization of the processes

- Application outside HEP:
  - Environment: IR Sensors
  - Medical application: Endoscopy

- Tech transfer options:
  - Joint development with IZM
  - Democratisation of TSV

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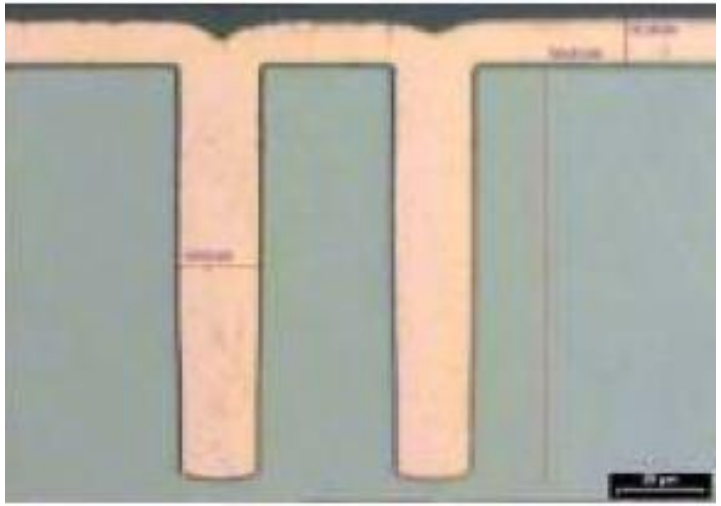
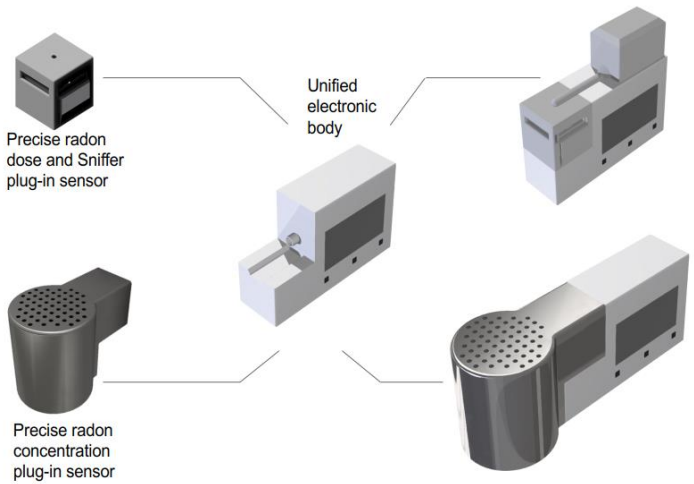


RaDoM

- Produce 10 prototypes
- Adress the market
- Application outside HEP:
  - Environmental
  - Public health
- Tech transfer options:
  - Create a company

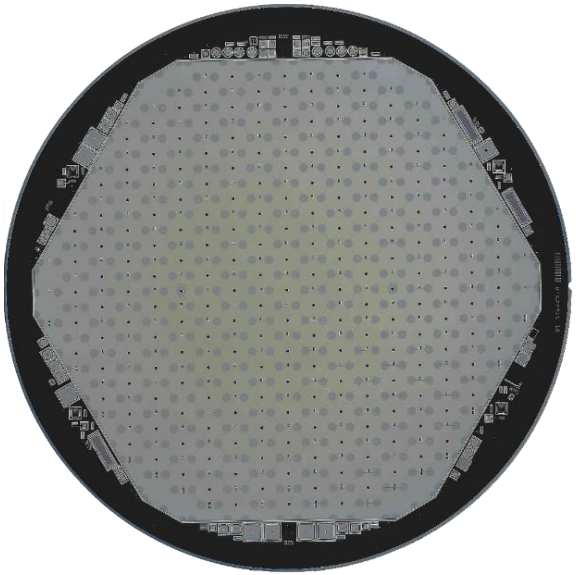


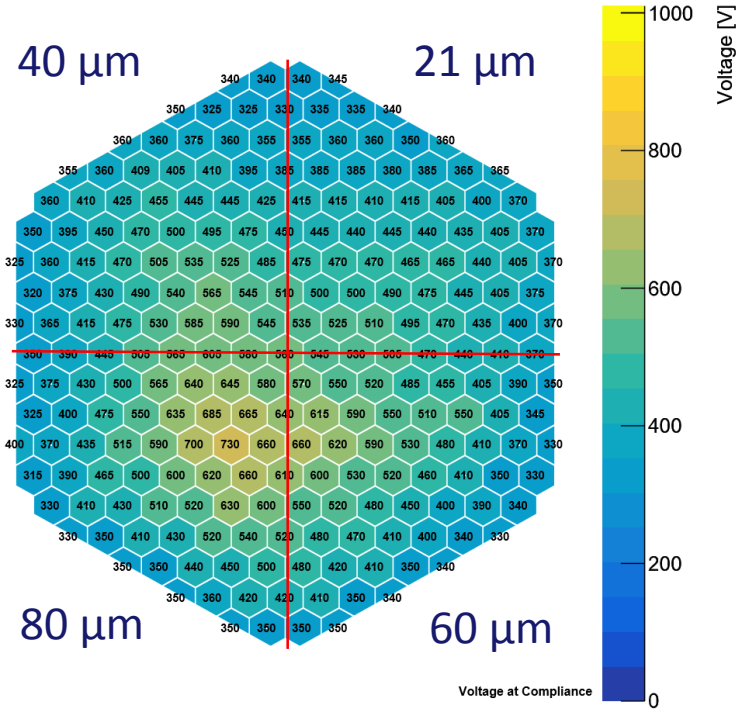
Task2.5 Pre-industrialisation of large area silicon detectors

- Monopoly situation in planar large-area silicon detectors
- Market survey:
  - Common MS CMS/ATLAS
  - Identify an EU company able to produce sensors on a large scale
- Infineon:
  - Experience with fully depleted devices
  - Fruitful collaboration with HEPHY

Task2.5 Pre-industrialisation of large area silicon detectors

- Improving from 1st batch to 2nd batch
- Probe card under developement





Milestones and Deliverables

- Deliverables since last annual meeting
  - D2.1: Key technological areas (identification of technologies for potential transfer to industry)
  - D2.2: PoC selection (selection and definition of grants for the projects)
- Milestones since last annual meeting
  - MS10:Criteria to define, identify, and select key technologies for the PoC Fund
  - MS30:Identification of European company(s) interested in large area sensor production
  - MS38: Review and selection of the project(s) to support through the PoC Fund

Milestones and Deliverables

- Expected milestones:
  - MS45: 1st AIDA-2020 “Academia meets Industry” event (M24)
  - MS71: Progress review of the selected projects(s) for the PoC Fund (M34)
  - MS79:2nd AIDA-2020 “Academia meets Industry” event (M36)

Coming year

- Follow-up PoC projects
- Strenghten the links with TTO
- Organize AMI-2 : any idea?

Contact me !