



NOVEL MATERIALS DISCOVERY

NOMAD Laboratory Centre of Excellence

Industry Interview - Dr. Yolanda de Miguel, Nanotechnology Cluster Director, TECNALIA



TECNALIA Research & Innovation (TECNALIA) is an applied research and technological development centre whose best asset is a team made up of over 1,400 experts (incl. 214 PhDs) oriented to **turning technology into GDP**, by anticipating future challenges, and developing the necessary technological solutions with an aim to generating business opportunities for companies. The following figures give an idea of our current volume of activity: turnover 102 million € (2016), 391 active patents, 22 active promoted technology-based start-up companies, employing 367 people.

Our R&D activities in advanced materials and nanotechnology include the development of novel nanomaterials (e.g. nanoparticles, nanofibres incl. nanocellulose, graphene and other carbon-based nanostructures, etc.) as well as the development of a wide range of advanced materials and final products (e.g. via dispersion and incorporation of intact and functionalized nanomaterials into different bulk materials or coatings) for different uses in health, energy, construction, automotive, aerospace and other industrial applications. Some examples include graphene-based lightweight and thermal dissipation composites, aerogels, coatings for corrosion protection, photocatalytic materials and products, green concrete, electrodes for batteries, nanosteel, advanced ceramics, and so on. In 2015, we created the Nanotechnology Cluster at TECNALIA, which groups together approx. 120 researchers from different disciplines working together in the field of nanotechnology and advanced materials. Approximately 60% of them are PhD graduates and all are permanent staff (excl. PhD students).

NOMAD is a very interesting project for us and we are very keen to establish several collaboration projects with this Centre of Excellence; both with our Nanotechnology Cluster and with our Big Data Group of Excellence at TECNALIA.

TECNALIA already has access to the SPRINGER MATERIALS database, but we are very interested in having access to other materials characterization experimental data as well as any numerical simulation data for materials from NOMAD. It would be very useful for TECNALIA to have access to a database on material structures including both experimental and theoretical modeling data. Perhaps this could be made available through NOMAD.

In Dr. Yolanda de Miguel's opinion: "By providing both modeling and experimental data, jointly, NOMAD could become a one-stop-shop for information on materials."

TECNALIA could interact with NOMAD in different ways: (1) TECNALIA could collaborate by posing industrially-relevant problems that can be solved using NOMAD resources. We could provide structures of materials and/or specify which materials data we would like to obtain. We could collaborate to study these materials together, both by modeling and experimentally. (2) We could also contribute from the Big Data and Data Analytics point of view, e.g. by providing new tools for data analytics.

In fact, a NOMAD-TECNALIA brain-storming workshop has already been carried out, in order to identify specific collaborative projects, which involved NOMAD members as well as TECNALIA's Nanotechnology & Advanced Materials experts and Big Data experts. After this, several follow-up meetings are taking place to define the collaborative projects in more detail.

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