



COST



***EUSpec: Modern Tools for Spectroscopy
on Advanced Materials: a European
Modelling Platform***

COST Action MP1306

Start date: 18/03/2014

End date: 17/03/2018

Year: *Starting*

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Scientific context and objectives

- **Background**

- A deep knowledge of the properties of the materials on the atomic scale is necessary in order to understand the origin of their macroscopic behavior
- This information is provided by spectroscopy making it indispensable tool for academic and industrial material research
- The lack of close communication between theoreticians and between theory and experiment hinders rapid progress

- **Main Objectives of the Action**

- The **main objective** is to gather theory activities in the field of spectroscopy to supply outstanding high level and up-to date support for demanding and sophisticated spectroscopy experiments
- Devise **new methods** to radically improve the description of spectroscopies and develop models for promising new ones
- **Extend the applicability** of the available spectroscopy codes to a very wide range of materials and spectroscopies
- **Promote collaborations** and transfer the know-how
- **Enhance the interaction** between theory and experiment

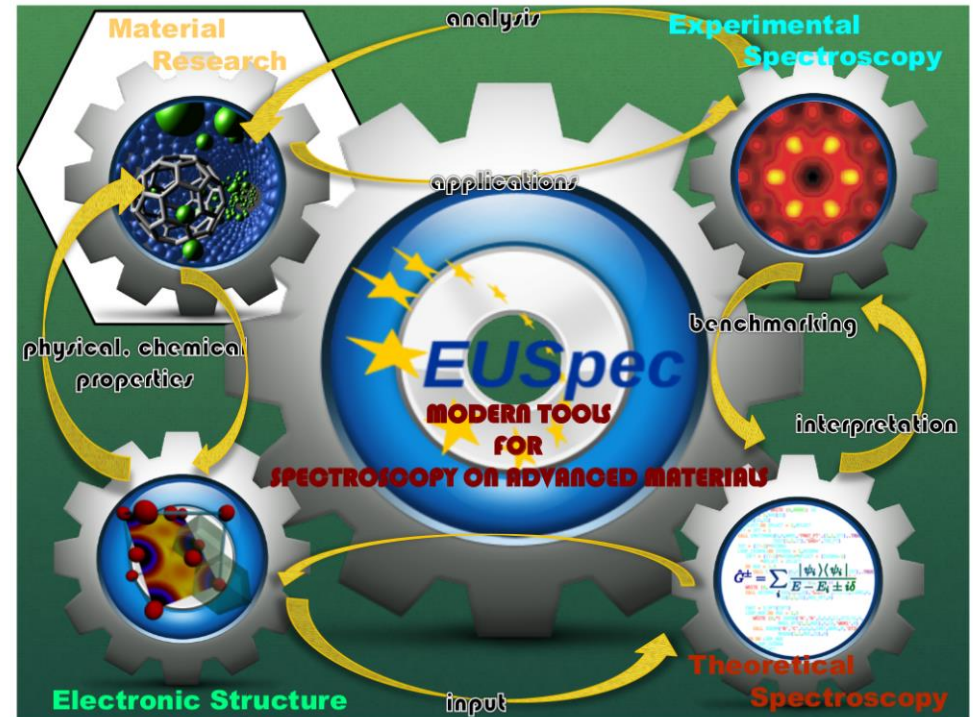
Scientific context and objectives

- **How to reach aims**

- Build *EUSpec* as a network between theory and experiment
- Enable a two-way information flow between *EUSpec* and spectroscopists
- Provide extensive info + functionality via website

- **Innovative features**

- Network of contact points at Advanced Radiation Sources (ARSs)
- Supply of large pool of free program packages
- Common data exchange format and tools





Working groups

1. The ***WG Experiment*** in charge of setting-up and establishing experiments to test and push theoretical models to their limits
2. The ***WG Correlation*** in charge of the description of electron correlation (ground state and excited state)
3. The ***WG Time-Resolution*** in charge of the description of femtosecond SR and XFEL spectroscopies
4. The ***WG Spectroscopy*** in charge of the description of a wide range of spectroscopies and their implementation into the codes of the Action
5. The ***WG Platform*** in charge of the integration of the codes into the platform website and of the cloud computing facility



Future Plans and Challenges

- **Future Plans**
 - Get the Action **take off** (Louvain, 15-17 Sept. 2014)
 - Work on all tasks formulated in the **work plan 2014/15**
- **Main Challenges**
 - **Integrate all participants** into the Working Groups
 - **Coordinate the activities** within and between the Working Groups
 - Use all means of the Action (meetings, STMSs, website,...) to **promote gender balance and ESRs**