

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

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Keywords: theoretical spectroscopy; experimental spectroscopy; scientific network

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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. The information provided by spectroscopy is an indispensable tool for academic and industrial research. Examples are found in physics (structural, electronic, magnetic, optical and elastic properties), chemistry (organic and inorganic chemistry, structural chemistry, catalysis), biology (structural study of proteins, cell biology, photosynthesis), environmental science (speciation in heterogeneous soils, sediments and plants).

EUSpec [1,2] is a COST Action MP1306 which brings together the expertise of experts from 26 European countries (and from two cooperating countries: Japan and Russia), from different fields of science such as physics, chemistry and biology who are working on advanced materials in order to build a coherent theory and computing platform with a new common data format to model sophisticated spectroscopy experiments performed at advanced radiation sources (ARS) as well as at academic and industrial research laboratories. In this Action theoretical and experimental scientists work hand in hand to improve the theoretical description of spectroscopy experiments, interpret experimental results, and develop new experiments (Figure 1). Main activities of EUSpec are focused on (Figure 2):

– coordination of Short Term Scientific Missions (STSMs)

- to promote early stage researchers (ESRs) activity,
- creation of a think-tank of ESRs in charge of making emerge new scientific ideas,
- promotion of interdisciplinary researches,
- organization of summer schools, training courses, scientific workshops and conferences,
- creation of a network of contact points at ARSs,
- providing a common platform for theory:
  - definition of common format for data exchange,
  - providing I/O-tools for common data format,

- enhancing interaction between theory and experiment;
- creation and development of the EUSpec website site.

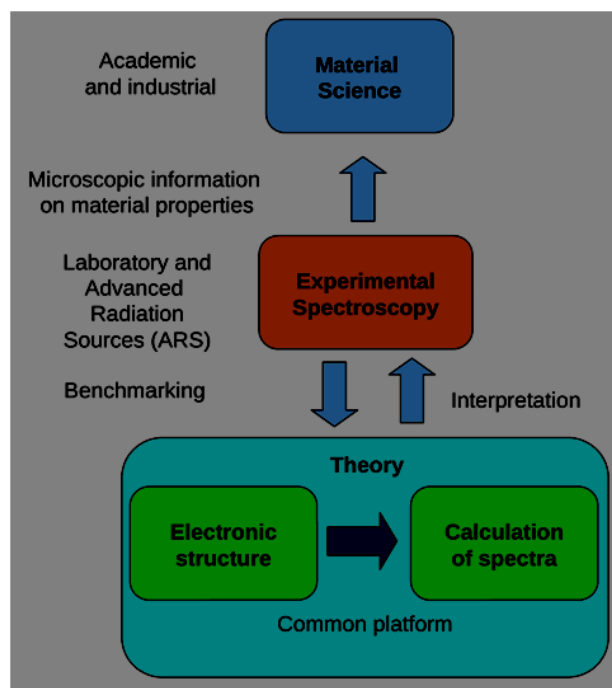


Figure 1. A schematic representation of the main objective of the EUSpec Action.



Figure 2. EUSpec activities.

**Acknowledgments:** COST is supported by the EU RTD Framework Programme.

[1] <http://www.euspec.eu/>

[2] [http://www.cost.eu/COST\\_Actions/mpns/MP1306](http://www.cost.eu/COST_Actions/mpns/MP1306)