

## Activities

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GREMAN's main activities are focused on materials, components and devices for energy efficiency and microelectronics : from nano to micro. Our lab researches are divided in five key topics :

- [Functional oxides for energy efficiency: combinatory synthesis and nanostructuration.](#)
- [Magnetic & optical properties of ferroic and electronic correlation materials.](#)
- [Innovative materials and components for power and RF microelectronics: wide bandgap & porous SCs and their applications.](#)
- [Piezoelectric & capacitive micro & nano systems for ultrasound transducers and energy conversion.](#)
- [Methods and instrumentation for ultrasonic characterization of complex media.](#)

## Multi-topics ongoing projects

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- **PIA « TOURS 2015 »** : New switches bases on cMUTs technology and energy harvesting dispositive based on ZnO nanostructure - Investment program "New Energy Source" (2012-2018). Coordinator STMicroelectronics Tours. Partners : 14 academic partners - GREMAN (cMUTs and ZnO research teams) - (interactions with GREMAN - ZnO research team : LCPO Bordeaux UMR5629, LCC Toulouse UPR8241). **Project led by Oxides, Microelectronic and Micronanosystems research teams.**
- **« COHMET »** : Couplages magneto-electriques dans des heterostructures multiferroiques - Project of Region Centre-Val de Loire (2013-2017). Project's leader : GREMAN. Partners: ICMN (Universite d'Orleans), ST Microelectronics (Tours). **Project led by Oxides and Caracus research teams.**
- **Projet europeen « SAM3 »** : Caracterisation de semi-conducteurs - Amelioration des outils de caracterisation de dispositifs microelectroniques, microscopie acoustique et caracterisation de couches enfouies - Project of Eureka-Catrene (2015-2018). Coordinator : ST (Grenoble). Partners : 14 participants from 3 europeans countries. Project led by Microelectronic and Caracus research teams.
- **« ALBATTROS »** : Alternatives en eElectrodes pour BATTeRies iOn Sodium - Project of Region Centre-Val de Loire (2014-2016). Coordinator : PCM2E. Partners: PCM2E, GREMAN. Project led by **Oxides and Microelectronic research teams.**
- **« BAGS »** : Micro-batteries tout-solide a base de graphene et de silicium Project of Region CVL (2016-2018). Coordinator: PCM2E. Partners: PCM2E, GREMAN, SILIMIXT and STMicroelectronics. **Project Oxides and Microelectronic research teams.**