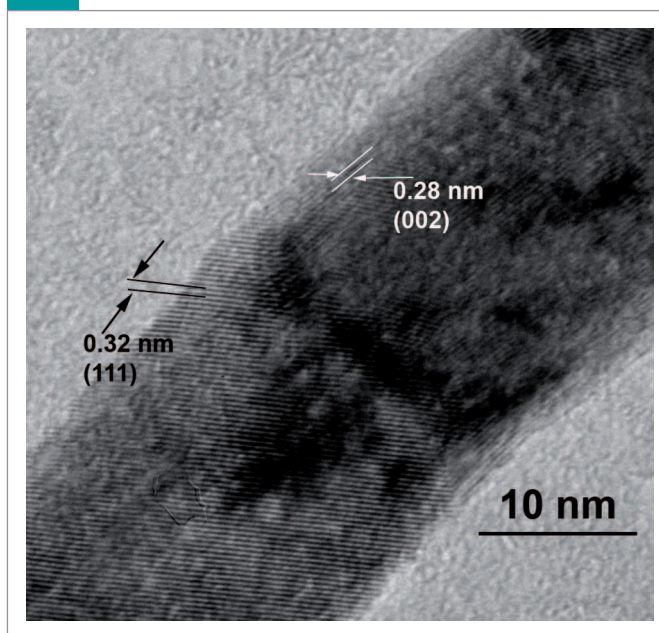


The Center for Research and Development of Functional Materials (CDFM) is an evolution of the Multidisciplinary Center for the Development of Ceramic Materials (MCDCM), which received FAPESP funding in the first phase of the RIDC program. At the core of the MCDCM was the ability to synthesize materials with controlled chemical composition, microstructure, and morphology.

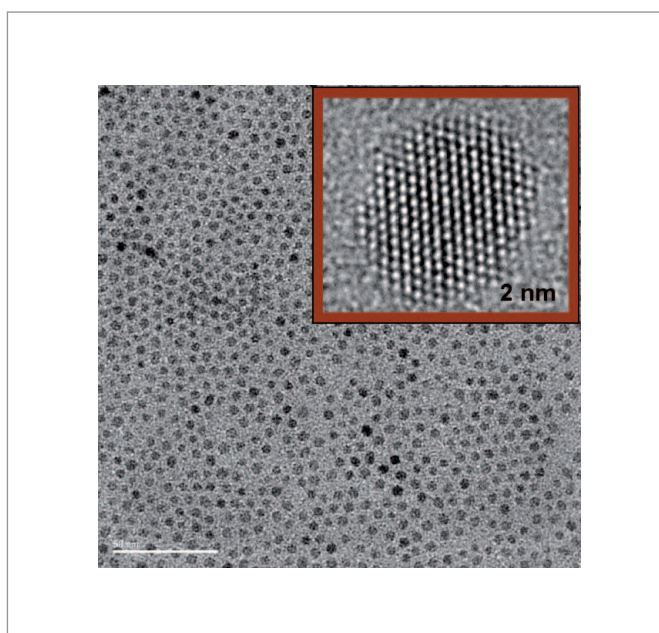
Since then, in pace with the accelerated transformations that have already occurred in this century, global needs have changed drastically. Currently, three main concerns are emerging to address those needs: renewable energy, health and the natural environment. During the same period, the materials science community has been engaged with the research and development of functional and nanostructured materials that can be useful for meeting these new societal needs. Therefore, CDFM will use its skill in research and development of functional and nanostructured materials with tailored properties to solve problems related to renewable energy, health and the natural environment.

In terms of innovation and technological transfer, the new RIDC will be directly connected to the basic research program and will act in the following areas: 1) Pilot plants for functional nanoparticles, 2) Development of new applications for functional materials, and 3) Generation of spin-off companies.

Concerning activities related to education and training, a preferred target audience will be high school teachers, to whom the Center will offer extension courses geared to the use of information and communication technology in science education. The Center will also offer teaching strategies aimed at improving teacher performance in the classroom. The conceptual mapping technique, which allows teachers to build and relate concepts, to represent knowledge in a hierarchical way, to share knowledge meaning between teachers and students and to facilitate learning and scientific reasoning, is one of the main tools that will be used. Moreover, a specialized course in science journalism is planned.



Synthesis of nanocrystalline ceramics: HRTEM image of CeO<sub>2</sub> nanobelts obtained by the oriented attachment (OA) mechanism



HRTEM image of ZrO<sub>2</sub> nanocrystal processed by solvothermal process

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São Paulo State University (UNESP, campus Araraquara)

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University of São Paulo (USP)  
Federal University of São Paulo (UNIFESP)  
Federal University of São Carlos (UFSCar)  
Federal University of ABC (UFABC)  
The Energetic and Nuclear Research Institute (IPEN)  
Center for Information Technology Renato Archer (CTI)  
Foundation for Research Support in Information Technology (FacTI)  
Brazilian Center for Research in Energy and Materials (CNPEM)

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