

**RE-2016-01. “Research Projects in Science, Technology, and Innovation linked to Mexican scientists and technologists working abroad”**

278320

**Strengthening the capabilities of analysis of new materials with applications in optoelectronics by using high-resolution optical methodologies**

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UMSNH



Objective: Substantially improve our capacity to generate and analyze new functional materials, as well as develop high-performance spectroscopic methodologies for thermal and optoelectronic device development, leveraging synergy with Mexican researchers at Georgia Tech and City University of Hong Kong. Train new Mexican researchers with the ability to conduct cutting-edge applied research at an international level.

Summary: This project focuses on developing new functional materials and high-performance methodologies to study processes that occur over very short timescales and increasingly smaller spatial scales. The goal is to establish the foundation for the development of cutting-edge devices to control processes of radiation absorption and emission, carrier generation, and energy flow management in its various forms. The functional materials developed were of three types: hybrid perovskites based on lead halides, phase-change materials based on vanadium oxides and tetraiodomercurates, and high-performance composite materials.

TRL Level: Does not apply

Users: Developers of thermal and optoelectronic devices

**Obtained Benefits**

Human Resources	Scientific Products	Technological Products
Colaboration Networks: 3 Human researchers formed: 5 PhD and 3 Master of Science students	Publications: 14 in prestigious international journals. Development and Improvement of material products: 5	New Products/Services:1 New productive processes:: 0 Patents: 0 Transferred technologies: : 0 Infraestructure for R&D: 5

