

**• Mohammed CHERKAOUI**

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Spécialité: Mécanique, matériaux et transitions d'échelles

Collège : Sciences Physiques et Chimiques



Membre correspondant  
(nommé en 2006)

Mohammed Cherkaoui is currently professor at the School of mechanical engineering in Georgia Institute of Technology.

Professor Cherkaoui's main research interests are in the area of multiscale modeling of the behavior of heterogeneous materials, in particular the ones with complex microstructure. He primarily developed new concepts accounting for the effect of a stationary interface on the overall behavior of composite materials (coated inclusion problem, extension of the Eshelby solution). He recently extended these concepts to the case of moving interfaces (ellipsoidal inclusion problem with moving boundary) governing typically the behavior of materials presenting a good compromise between ductility and strength. This research was first initiated in collaboration with a French steel industry and currently conducted in collaboration with US Department of Energy to design new materials for lightweighting purposes in ground transportation.

M. Cherkaoui is involved in much international collaboration devoted to nano and smart materials. The research includes analytical, numerical and experimental investigations.

M. Cherkaoui has authored or co-authored several publications and is an associate editor of the ASME Journal of Engineering Materials and Technology. He is also co-authoring the first textbook in the area of micromechanics (Fundamentals of Micromechanics of Solids, published by John Wiley & Sons Book, 2006) and also the first textbook in the area of Nanomechanics (Atomistic and continuum modeling of Nanocrystalline materials, to be published by Springer, 2008).