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MÁSTER EN CIENCIAS FÍSICAS, UNIVERSIDAD DE LA HABANA, CUBA, 1997.

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Actividad Actual e Institución en la cual trabaja:

PROFESOR ASISTENTE DE LA UNIVERSIDAD DE CHILE. DEPARTAMENTO DE FÍSICA, FACULTAD DE CIENCIAS.

Reseña de su actividad laboral actual:

Docencia: Imparto Física en las carreras de la Facultad. También doy cursos de postgrado del programa de doctorado en física. Asimismo, trabajo en proyectos de investigación en ciencia de materiales.

Líneas de Investigación: estoy interesado en las aplicaciones de la simulación computacional de la escala atómica a la predicción y explicación de las propiedades de los materiales. Principalmente aquellos problemas donde la combinación de la experimentación y la simulación es necesarias para obtener respuestas. Algunos ejemplos son la espectroscopia de los materiales complejos y nanoestructuras, la estabilidad de fase en condiciones extremas, los materiales amorfos y poco cristalino,

y materiales promisorios con métodos de fabricación aún no desarrollados. Tengo experiencia en los cálculos de estructura electrónica, dinámica molecular, propiedades elásticas, fonones, espectros ópticos y espectros de niveles profundos. La mayoría de mis cálculos de estructura electrónica se basan en la teoría funcional de la densidad, pero también utilizan métodos de función de onda. En particular, actualmente estoy trabajando en la aplicación y desarrollo de un método de función de onda aproximada para la descripción de las excitaciones electrónicas en los sistemas moleculares con gran número de átomos. También uso, siempre que sea posible, las técnicas de simulación basadas potenciales interatómicos empíricos.

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Montero-Alejo, A.L., Menéndez-Proupin, E., Fuentes, M.E., Delgado, A., Montforts, F.-P., Montero-Cabrera, L.A., García De La Vega, J.M.
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