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A.T. Charlie Johnson, Jr., Ph.D.
Rebecca W. Bushnell Professor of Physics and Astronomy

Human Resources
MackGraphe

May 28, 2025

Dear Sir or Madam,

I am writing to offer my most enthusiastic recommendation for Dr. Elsa Materón for a position as a graphene microfabrication specialist at your institute. Elsa did internships under my supervision during her PhD (2015) and post-doctorate (2018) research. While at the University of Pennsylvania (Penn), her work consisted of developing sensor arrays based on graphene field-effect transistors (FETs) for the detection of cancer biomarkers and anticancer drugs.

My group has extensive experience in graphene growth and the design and measurement of graphene FET biosensors, and we are an international leader in these fields. During her time in the lab, Elsa learned all the skills underlying this emerging technology, using the state-of-the-art facilities at Penn's Singh Center for Nanotechnology. She also completed a course covering the correct use of the clean room, photolithography, and the clean room tools used to fabricate the devices. Elsa showed a high level of independence in her research, along with excellent teamwork, hard work, and adaptability in the lab. I was extremely pleased with Elsa's performance and productivity while working with my research group. She was an outstanding colleague, and I would be very pleased to work with her in the future.

As you can see from her experience since her time at Penn, Elsa has continued to broaden her expertise in biosensor development and innovation, including additional experience in the design and fabrication of graphene FET biosensors. This gives her an outstanding background for the position you are looking to fill, and I am pleased to offer her my strongest recommendation for your research position.

Please let me know if I can provide any more information to strengthen Elsa's candidacy for your open position.

Respectfully,

A handwritten signature in black ink, appearing to read 'A.T. Charlie Johnson Jr.'.

A.T. Charlie Johnson, Jr.
Rebecca W. Bushnell Professor of
Physics and Astronomy