



September 24, 2013

Dear Reappointment, Promotion, and Tenure Committee,

I am pleased to provide this evaluation of Assistant Professor Diedrich A. Schmidt in support of his continuing appointment at North Carolina A&T University. I am most familiar with Diedrich's PhD project and Raman spectroscopy work conducted during his postdoc residence at Ruhr University Bochum. If I were to describe him as a researcher in a few words, he is an excellent spectroscopist.

His PhD work focused on titanium dioxide grown on silicon and lanthanum aluminate substrates. His diligent approach in analyzing deep ultraviolet and x-ray absorption and photoemission spectra lead him to elucidate various interface structures and the nucleation of oxide clusters as well as tailoring the composition and local atomic structure of the titania overlayer.

My second scientific interaction with Diedrich is through the study of epitaxial graphene film using Raman spectroscopy. He has shown a way to interrogate both the mechanical and electronic properties quantitatively through his meticulous data collection and rigorous data analysis. Coupling of mechanical/electronic properties is one of the distinguishing characters in two-dimensional (2D) crystals, such as graphene, due to the notorious in-plane inter-atomic bonding and the loose inter-layer interaction. His contribution exemplifies this realization, and displays that his creative analysis clearly goes beyond conventional uses of Raman spectroscopy.

Currently, Diedrich is working toward setting up an experimental capability to probe the optical properties of 2D crystals and other condensed matters in the infrared (IR) and terahertz (THz) regimes. Thanks to the vast development in IR-THz optics, this is yet another very exciting field of optics for spectroscopist, and will require somebody like Diedrich with dedication to detail to exploit the full potential. I believe this research field is an excellent choice for Diedrich, and look forward to his contribution in this new arena.

In summary, I feel that Diedrich's creative use of various optical and x-ray spectroscopy techniques, his excellent qualifications as a spectroscopist, and his dedication to teaching are commensurate with a continuing appointment as a tenure-track professor in the Department of Physics at North Carolina A&T State University.

Sincerely,

Taisuke Ohta
Senior Member of Technical Staff