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Abstract for an Invited Paper
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Quantum Transport in Few-Layer Graphene and Phosphorene Devices

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I will present our results on transport measurements in bilayer and trilayer graphene devices with mobility as high as 400,000 cm2/Vs. We demonstrate the presence of an intrinsic gapped state in bilayer and trilayer graphene at the charge neutrality point, a "new" spectroscopy technique for measuring the Landau level gaps, the distinct competing states at filling factor 2 and crossing between symmetry-broken Landau levels. Our results underscore the fascinating many-body physics in these 2D membranes. Finally, I will present our recent results on fabrication of air-stable few-layer phosphorene heterostructures and observation of quantum oscillations in these devices.