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**Infrared Photodetectors based on PbSe and PbS Nanoparticles.**
DON-HYUNG HA, University of Pennsylvania, Department of Materials Science and Engineering, CHRISTOPHER MURRAY, University of Pennsylvania, Department of Chemistry and Materials Science and Engineering — There is growing interest in developing nanoparticles for photodetectors, due to the potential to selectively tune the wavelengths detected by varying the size of the nanoparticles. Also, by virtue of the solution processibility of nanoparticles, photodetectors based on nanoparticles provide a low cost, easily processed opportunity for photodetection on flexible substrates. Especially for the near-infrared (NIR) region, PbS and PbSe nanoparticles are ideal candidates since their absorption windows fall between 900-1500nm and 1400-2500nm, respectively, covering a wide range of the IR region. This presentation reports the synthesis, structural characterization, and photoconductivity of colloidal PbSe and PbS nanoparticles. Photocurrent and normalized detectivity are measured from the nanoparticle photodiode under the illumination of NIR light (800-2500 nm) and under dark conditions.

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