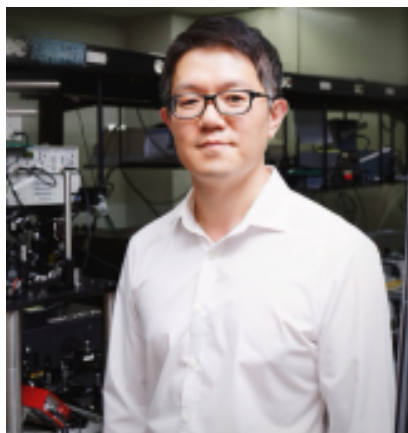


# MRSEC SEMINAR SERIES

## Shining Light on van der Waals Materials: Symmetry and Topology

In this talk, I will discuss how laser excitation can be used to manipulate the quantum degree of freedom in van der Waals materials. The first part of this talk will focus on inversion-symmetry breaking in multi-layer transition metal dichalcogenides (TMD) and the associated non-local detection of valley-locked spin photocurrent in topological insulators (TI) using the characteristic spin-momentum locking. In the second part, I will discuss the coherent exciton dynamics in group VII TMDs, where the broken in-plane symmetry plays a key role in observing the light-polarization-dependent phenomena. Finally, I will show both intrinsic and extrinsic ways of manipulating the interaction dynamics between the surface and bulk states in TIs, where we have observed a strong Fano-like asymmetric response via optical-pump and terahertz (THz) probe spectroscopy.

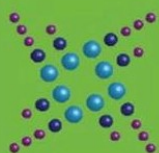
*Professor Hyunyong Choi received his BS from the Department of Electrical and Electronic Engineering at Yonsei University in 2002. He earned his MS and PhD in the Department of Electrical Engineering and Computer Science at the University of Michigan (under Prof. Ted Norris) in 2004 and 2007, respectively, and completed postdoctoral research at the Lawrence Berkeley National Laboratory until 2010. He joined the faculty of Yonsei University in 2011 as an Assistant Professor and was promoted to Associate Professor in 2015.*



### **Hyunyong Choi**

*Associate Professor  
School of Electrical and Electronic Engineering  
Yonsei University, Seoul, Korea*

*Thursday, November 15<sup>th</sup>, 2018  
Ryan Hall, Room 4003  
4:00 – 5:00 PM*



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