



# Differential Equations and Applied Math Seminar

Dr. Dongwoo Sheen, Seoul National University

11am-12pm February 22nd, 2019

336 Derrick Hall

**Title:**  $P_1$ -nonconforming polyhedral finite elements in high dimensions

**Abstract:** We consider the lowest-degree nonconforming finite element methods for the approximation of elliptic problems in high dimensions. The  $P_1$ -nonconforming polyhedral finite element is introduced for any high dimension. Our finite element is simple and cheap as it is based on the triangulation of domains into polytopes, which are combinatorially equivalent to  $d$ -dimensional cube, rather than the triangulation of domains into simplices. Our nonconforming element is nonparametric, and on each polytope it contains only linear polynomials, but it is sufficient to give optimal order convergence for second-order elliptic problems.

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Interested faculty and graduate students are encouraged to attend.