

**The Hong Kong Polytechnic University  
Department of Applied Mathematics**

**Colloquium**

**Finite element analysis for a generalized Robin boundary value problem in a smooth domain**

**By**

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**Abstract**

We present finite element analysis to a generalized Robin boundary value problem in a smooth domain. It consists in solving an elliptic equation in a bulk domain, which is coupled with another elliptic equation given on the boundary, through the normal directional derivative. Such a bulk-interface coupled PDE appears as a simplified model for fluid-structure interaction problems, or problems with a dynamic boundary condition. Taking into account the discrepancy of the original domain and its polygonal approximation, we derive an optimal error estimate for the case of linear finite element approximation.



**Date: 23 March 2022 (Wednesday)**

**Time: 14:30-15:30 (Hong Kong Standard Time GMT +8)**

**Venue: Online Talk via Zoom (Meeting ID: 924 4059 1697)**

**Speaker: Prof. Takahito Kashiwabara, University of Tokyo**

**Host: Dr. Buyang Li, The Hong Kong Polytechnic University**

**Click to join:**

**<https://polyu.zoom.us/j/92440591697?pwd=ekdZbXJHb1p2dE5YL3l3NFE4SmZvZz09>**

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**\*\*\* ALL ARE WELCOME \*\*\***

For enrolment, please send your name and email to [wai-yan.moon@polyu.edu.hk](mailto:wai-yan.moon@polyu.edu.hk) on or before 22 March 2022