



**The Hong Kong University of Science & Technology**

**Department of Mathematics**

**PhD Student Seminar**

**Chiral de Rham complex on the  
upper half plane**

by

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**Abstract**

The Chiral de Rham complex  $\Omega_X^{ch}$  is a sheaf of vertex algebras over smooth manifold  $X$ , which contains the usual de Rham complex as a subcomplex with conformal weight zero. In the case of the upper half plane  $X = H$ , we will equip an  $SL_2(\mathbb{R})$ -action on the localization of  $\Omega_X^{ch}$ , derived from the linear fractional transformations. The formulas coincide with the formulas of coordinate transformations. And the  $\Gamma(1)$ -invariants of global sections are shown to be closely related to the modular forms.

***Date: Wednesday, 8 May 2019***

***Time: 4:00 p.m. - 5:00 p.m.***

***Venue: Room 2132A, Academic Building  
(near Lifts 22), HKUST***

***All are welcome!***