



Prof. Eugene Y. S. CHUA

Nanyang Technological University

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De-Idealizing De-Idealization with Asymptotic Reasoning

Date : 3 March 2025 (Monday)

Time : 16:45 – 18:15

Venue : LKK103 & Zoom Seminar

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This paper brings together two questions. On the one hand, there is a question of how approximations relate to idealizations. On the other hand, there is a question of whether de-idealization is needed for justified use of --- for 'checking' --- idealizations. We propose a generalized account of asymptotic reasoning which answers both questions. On this view, idealizations and approximations are both steps in the general process of asymptotic reasoning, which we understand broadly in terms of the search for model-to-world convergence. Furthermore, while convergence is often cashed out in the literature in terms of formal approximation schemes and Galilean de-idealizations which 'add back' all relevant details and bring us back to the "full representation", we argue that such an understanding of convergence is itself idealized. We propose three ways of de-idealizing de-idealization, in terms of intra-model, inter-model, and measurement de-idealizations. These highlight ways in which idealizations can be 'checked' without appealing to Galilean de-idealizations, which in turn provide an understanding of convergence in line with scientific practice, using concrete examples from physics.

All are welcome

For enquiries, please call 2616 7445 / 2616 7488 or e-mail to dphilo@ln.edu.hk