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# Applied Mathematics Seminar

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### Multi-Rate Integration and Fault Diagnosis

Numerical integration of systems of ODEs is at the heart of simulation and finds application in Engineering as well as Science. Traditional "single-rate" solvers use a single time-step to integrate all components. This approach can be inefficient for many problems which involve large systems with different time-scales or localised activity. Multi-rate integration aims to improve efficiency by using different time-steps for different components.

In the second part, I will talk about Fault Diagnosis in Heating Ventilation and Air-Conditioning (HVAC) systems. After a brief introduction, I will focus on a computationally efficient method for fault diagnosis in Fan-Coil Units.

For more details see: A. Ranade et al. *Journal of Building Engineering* **27**, 100955 (2020).

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Wednesday, 27.11.2019 · 16:00 · WGB G08

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