



Graduate School of Information Science, University of Hyogo  
9<sup>th</sup> International Research Seminar

## HOMOGENIZATION OF THE RENEWAL EQUATION WITH HETEROGENEOUS EXTERNAL CONSTRAINTS

Mon. 6 Jan. 2025 (15:00 ~ 16:00) JST

**IN-PERSON/ONLINE SEMINAR**

We study the homogenization limit of the renewal equation with heterogeneous external constraints by means of the two-scale convergence theory. We prove that the homogenized limit satisfies an equation involving non-local terms, which are the consequence of the oscillations in the birth and death terms. We moreover show that the numerical approximation of the homogenized equation via the two-scale limit gives an alternative way for the numerical study of the solution of the limiting problem. The results have been obtained in collaboration with Etienne Bernard (ENPC, France).

**Register here (free)**

<https://shorturl.at/wKQ2K>

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### Guest Speaker



#### Francesco Salvarani

Associate Professor, University of Pavia,  
Italy & Ecole Supérieure d'Ingénieurs  
Léonard de Vinci, France



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Francesco Salvarani is Associate Professor at the University of Pavia in Italy and Full Professor at the Ecole Supérieure d'Ingénieurs Léonard de Vinci in France. He earned his PhD in Mathematics from the École Normale Supérieure de Cachan (France) and the University of Genoa (Italy). His expertise spans kinetic theory, mathematical modeling, and applied analysis, with over 60 scientific publications and extensive editorial contributions. He is an Ordinary Academician of the National Virgilian Academy of Sciences, Letters, and Arts (Italy). Prof. Salvarani has been the principal investigator of several international research teams. He organized numerous international workshops, and summer schools and has a distinguished teaching and research collaboration portfolio across Europe and Japan.

**For more details:**

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