

## **Yusuke Toyama**

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## **Mechanical role of apoptosis in tissue homeostasis**

**Thursday, March 6<sup>th</sup>, 2025  
at 9:00 am**

Seminarraum B1.72  
DWI – Leibniz-Institut für Interaktive Materialien  
Forckenbeckstraße 50, 52074 Aachen

Host: **Jacopo Di Russo**

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**Abstract:** Apoptosis, or programmed cell death, is a critical mechanism for eliminating damaged or unnecessary cells during embryonic development, tissue homeostasis, and certain pathological conditions. Our primary research focus is to elucidate the apoptotic process from a mechanical perspective. This includes investigating how apoptotic cells are mechanically expelled from their neighboring non-dying cells, how the apoptotic process generates mechanical forces that govern tissue tension and morphogenesis, and how the mechanical impact of apoptosis influences the fate of surrounding cells. In this presentation, I will discuss our current understanding of the link between apoptosis and mechanical forces. Additionally, I will highlight our latest efforts to unravel the collective behavior of immune cells in the clearance of apoptotic cells, as well as explore how senescent cells undergo apoptosis when in close proximity to non-senescent cells.