



# Physics Colloquium

Tuesday, 11 April 2023 at 16:30

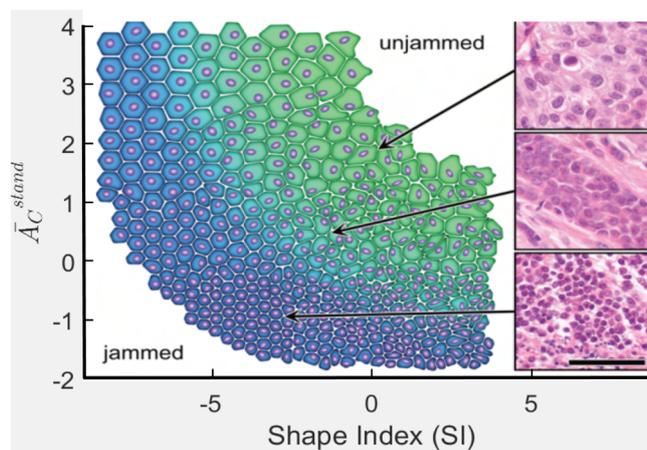
**Prof. Dr. Josef A. Käs**

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## Does Oncology Need Physics of Cancer?

Soft matter physics is essential to understand the onset of cancer metastasis. We have recently proven that the pathological changes in tumors cause cancer cell unjamming as a collective fluidity (i.e. cell motility) transition.

A fundamental questions remains. Is unjamming just a side-effect or is it essential for tumor progression? Like the annual rings in a tree slice we have developed a morphodynamic link that uses the static morphology in cancer cell clusters to predict the dynamics of cancer cells that leads to metastasis. The provided phase diagram of cancer cell unjamming establishes a link between cancer cell motility and morphological changes in tumors that even prognosticates long-term distant metastatic risk that can occur after a decade. Our results demonstrate that an emergent physical phenomenon contributes to tumor progression. 92% of all cancer patients will benefit from this diagnostic insight.



Venue: Universität Leipzig, Faculty of Physics and Earth Sciences  
04103 Leipzig, Linnéstraße 5, **Change of room: Small Lecture Hall**

After the lecture, everyone is invited to a reception in the Aula.

For an up-to-date semester program, sign-up for the physics colloquium mailing list, and subscription to the digital calendars in CalDAV format, head to the colloquiums web page [www.physgeo.uni-leipzig.de/events](http://www.physgeo.uni-leipzig.de/events).

