



# INFORMATICS COLLOQUIUM

**Speaker:**

**Lukas Vogel, TU Munich, Germany**

## **Reading database systems for modern storage technologies**

**Abstract:**

Over the last years, the storage device landscape has considerably diversified. For example, fast PCIe SSDs are now common even for consumers, and byte-addressable Persistent Memory (PMem) blurs the lines between storage and memory. The traditional hierarchy of cache, DRAM, disk that database systems have relied on for decades is an outdated model that is increasingly replaced by a "storage jungle" of devices with different trade-offs.

In this talk, I will present two lines of my work that bring order into this jungle, Mosaic and Plush: Mosaic is a storage engine for *\*read-heavy\** (i.e., analytical) database workloads. It employs a cost model to find and exploit the optimal device makeup for a given workload and can even give purchase recommendations. Plush is a PMem-optimized data structure designed for *\*write-heavy\** (i.e., transactional) workloads. It leverages PMem's low write latency to achieve high throughput while still being crash-consistent and thus freeing database systems from having to keep a log.

**Bio:**

Lukas Vogel is a fifth-year PhD student at the database chair of the TU Munich. His primary research interests are in exploiting modern storage hardware for database systems on which he collaborated with Fujitsu. He also contributes to the novel SSD-based Umbra database system.

*Date and time:* Tuesday, November 22<sup>nd</sup>, 2022, 10:00 am  
*Location:* Pérolles 21, room C130, Bd de Pérolles 90, Fribourg  
*Contact person:* Prof. Philippe Cudré-Mauroux

*The colloquium is free and open to the public.*