

# 2<sup>nd</sup> Joint RMaP & IQCB SEMINAR

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## Direct RNA Sequencing and the Expanding Landscape of Epitranscriptomics

RNA biology is shaped by multiple layers, from the diversity of RNA biotypes and their expression levels to RNA structure, 5' and 3' ends, poly(A) tail features, and the epitranscriptome, which contains more than 170 chemical modifications that influence RNA behavior and function. Direct RNA sequencing (DRS) offers a way to observe many of these features directly by reading native RNA molecules without reverse transcription or amplification. The presentation will explore (1) early work showing that RNA modifications leave distinct basecalling error patterns in DRS data and (2) how similar approaches have been scaled to profile multiple modification types in rRNA, quantify stoichiometries, and uncover previously unannotated sites. This will lead into an overview of the rapidly growing set of DRS-based modification detection tools and current thinking about their future development. Additional topics will highlight (3) advances in multiplexing that enable larger and more efficient DRS studies, (4) progress in tRNA quantification and modification analysis informed by methods such as Nano-tRNAseq, and (5) emerging clinical applications that demonstrate how RNA sequencing can support genetic diagnostics and broaden our understanding of disease.

**19  
NOV**

**Lecture Hall at Bio Center I  
Hanns-Dieter-Hüsch-Weg 15  
55128 Mainz**

**10:00  
AM**

