

APR20-2020-000580

Abstract for an Invited Paper  
for the APR20 Meeting of  
the American Physical Society

**Theoretical Cosmology in the 1960s**

DENNIS LEHMKUHL, University of Bonn

This talk will focus on the development of new mathematical methods during the 1960s that allowed for new ways of understanding the solution space of the Einstein equations, and subsequently for new avenues to work on cosmology. The focus will be on the classification schemes for vacuum solutions developed by Petrov, Penrose, and Pirani, as well as the global methods developed during the work on the singularity theorems by Penrose and Hawking. Building on this, the talk will outline how both the singularity theorems themselves and the new methods developed in proving them have influenced subsequent work on cosmology.