Illuminating the Dark: Discovering in Dark Matter Research through Natural Language Processing

This study utilizes natural language processing (NLP) techniques to analyze trends and emerging topics in dark matter research using abstracts from papers indexed on InspireHEP. In this work, we developed NLP pipelines to extract key topics and terms from the abstracts, assessing frequency and relationships between terms over time. With topic modeling we reveal emerging directions like.

This application of NLP methods to the InspireHEP corpus of scientific abstracts allows discovery of topic evolution in the dark matter field. The techniques outlined could be extended to additional physics subjects to map research trends, but most importantly draws attention to individual works which might be interesting for other groups to know and even link hidden links. This provides useful insight for researchers to identify promising new theoretical frameworks and experimental approaches in the ongoing quest to elucidate the particle nature of dark matter.

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