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PLENARY: Dark Matter - the Unseen Universe

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Abstract content
 (Max 300 words)

Astronomers now widely accept the view that most of the mass of the universe exists in the form of an unknown substance, which we call dark matter. We know more about what dark matter isn't than what it is. I'll review the observational evidence that builds a compelling case for dark matter, discuss some of the current astronomical programs to explore its nature, and ask if there are possible alternative explanations. Just as the search for the "aether" at the beginning of the 20th century revealed fundamental flaws in our understanding of physics and led to a new view of space and time, dark matter indicates that our current standard model cannot be a complete explanation of matter, and possibly hints at a new revolution in our understanding of the physical nature of the universe.

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Primary author: Prof. WILLIAMS, Theodore (South African Astronomical Observatory)

Presenter: Prof. WILLIAMS, Theodore (South African Astronomical Observatory)

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