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Solar Tomography: current progress and future perspectives[1]
GREGORY FLEISHMAN, New Jersey Institute of Technology — Solar activity is driven by solar magnetism. All essential dynamic processes underlying the solar activity, such as magnetic reconnection, particle acceleration, and eruptions are fundamentally three-dimensional (3D). In contrast, what we observe using modern ground- and space- based observatories are 2D projections taken out of the 3D reality. Thus, the challenge the modern solar physics sees is how to reconstruct the 3D reality out of those 2D projections. In this presentation I briefly review the approaches to address this challenge with the data and modeling tools we have now and anticipate to have in near future. In particular, I am going to emphasize the role of the imaging spectroscopy and specropolarimetry in the microwave and millimeter domains from such instruments as Expanded Owens Valley Array and Atacama Large Millimeter/submillimeter Array.

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