

Whither Polarimetry Today (Review Lecture)

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The advent of polarimetry in modern engineering probably started with the development of radar and its applications. The engineering approach in its initial form was based on the **scattering matrix** concept. This approach is generally described as **coherent polarimetry**. Well before the days of radar, however, polarimetry developed from the study of partially polarised natural light. This approach, commonly described as **incoherent polarimetry**, was based on the **Stokes matrix** concept. Both methods today have a place in modern polarimetry. In this contribution, the evolution of the current manifestations of these two methods and their derivatives will be presented. The strength and weaknesses of the two methods, with reference to applications, will be highlighted with the help of results published in the recent past. Examples from weather radar and synthetic aperture radar applications will be used for this purpose. Finally the paper will dwell on the most recent developments in the field and the emerging new applications in remote sensing and propagation.