Effects of angle-dependent partial redistribution on linear polarization profiles from a spherically symmetric medium

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Linear polarization of resonance lines, produced via scattering of limb-darkened radiation field in a stellar atmosphere, sensitively depends on the form of the partial redistribution (PRD) function used in the polarized line transfer computation. For computational simplicity angle-averaged PRD functions are usually preferred over the more exact angle-dependent functions. However, from earlier studies in planar atmospheres it is clear that angle-dependent PRD effects cannot always be neglected. In this talk we present the angle-dependent PRD effects on linear polarization profiles emanating from spherically symmetric extended and expanding medium. We consider angle-dependent PRD effects in scattering on both atoms and free electrons. After discussing the numerical methods of solution, we illustrate the significant differences between linear polarization profiles computed with angle-dependent and angle-averaged PRD.