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Some long-standing puzzles regarding the dynamics of the solar chromosphere

This presentation reviews several unresolved, puzzling observational findings concerning the dynamics of the solar chromosphere dating as far back as the 80s and 90s. Among these are the very high apparent phase speeds in the chromosphere (vanishing phase differences of high-frequency waves between chromospheric lines with supposedly vastly different formation heights such as Ca IR, Ca K, H α , He 10830), surprisingly low RMS values in He 10830 and UV lines formed in the chromosphere, and the lack of clear shock wave signatures in those lines. Can the new 3D radiation hydrodynamic simulations and/or the new high-resolution observations shed new light on these long-standing questions?

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