Expanding the real field by multiplicative subgroups

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Abstract: An expansion of the real field by a closed and discrete set either defines the set of integers or defines no somewhere dense and codense set. In this talk I will discuss applications of this result. Building on work of van den Dries and Günaydin, a characterization of expansions of the real field by finitely generated multiplicative subgroups will be presented. If time permits, I will also explain its connection to work of Miller and Speissegger on expansions of the real field by trajectories of analytic vector fields.