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Paul C Roberts* (roberts@math.utah.edu), Department of Mathematics, University of Utah,
Salt Lake City, UT 84112-0090. *Questions on Noetherian rings of mixed characteristic.*

The proof of the Direct Summand Conjecture for rings of mixed characteristic a few years ago by Ray Heitmann has led to a renewed interest in various open questions for these rings. We discuss a number of these questions that are among important current topics of research. Chief among these are the homological conjectures and questions on local cohomology that have been settled in other cases but remain open in the mixed characteristic case. Finally, we outline a construction due to Fontaine that gives a new approach to these questions. (Received August 28, 2005)