

- ▶ XAVIER VIDAUX, *Positive existential definitions of multiplication from addition*.  
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Over the semiring of natural numbers, the problem of characterizing the arithmetic relations and functions that are as expressive as sum and product (in the sense of first order logic) has become a branch of model theory after Julia Robinson's thesis (1949). In this talk, I will survey what is known when restricting the allowed defining formulas to positive existential formulas, and I will not restrict myself to the natural numbers. The objective is not only to strengthen the negative answer to Hilbert's Tenth Problem (H10) over a given structure, as this kind of result has also been critically important in the past to prove analogues of H10 in some rings of functions. I will also present some recent joint work with Carlos Videla.

*Dedicated to the memory of Thanases Pheidas*