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Claudio H. Morales* (morales@math.uah.edu), Department of Mathematics, 301 Sparkman Dr., Huntsville, AL 35899. *EXPLORING THE POSITIVE DEFINITE PROPERTY FOR MONOTONE OPERATORS IN INFINITE DIMENSIONAL SPACES*. Preliminary report.

beginndocument For the past few years, we have been exploring this notion, that for finite dimensional vectors spaces, is known as positive definite. In fact, we begin our presentation, with some basic results for finite dimensional vector spaces, which are related to this very well-known *Theorem of Bolzano (1817)*. Certainly, our main objective is discussed this particular condition on linear and/or monotone operators defined for Hilbert spaces and beyond, to derive surjectivity results. The well-known *Lax-Milgram Theorem* may be derived as a consequence of these findings. (Received September 11, 2016)