**Comparison between Sputtering and Atomic Layer Deposition of ferroelectric doped and undoped HfO2**

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In 2011 ferroelectricity was discovered in a binary oxide: Si-doped HfO2 [1]. Thereafter, it has been demonstrated that a ferroelectric phase (f-phase) appears for a larger sort of cation dopants (Zr4+, Y3+, Al3+, La3+, Gd3+ or Sr2+) [2], with the Pca21 space group. Most of the articles use electrodes to stabilize the f-phase. In this context, the stack TiN/Hf0,5Zr0,5O2/TiN have been particularly studied. And in 2015 the first Negative Capacitance Field Effet Transistor (NC-FET) has been fabricated using this stack on the top of the NC-FET gate [3].

TiN is frequently fabricated by sputtering [4], whereas ferroelectric HfO2 is made by Atomic Layer Deposition (ALD). It could be interesting to have only one optimized process for the entire fabrication. But few articles have been dedicated to doped (and undoped) ferroelectric HfO2 by sputtering [5-7]. In this context, we compare different aspects of the two deposition technics for ferroelectric doped and undoped HfO2.

**References**

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