

# Integration of Reconfigurable Metamaterial-based Microwave Circuits on Silicon



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**Context** The general context of this project corresponds to the strong development of wireless communications, which has translated into intensive researches on the design/modelling/characterisation methodologies and also on micro-technologies to achieve microsystem with enhanced performances, miniaturisation and functionalities.

**Objectives** The research project aims to take benefit from the silicon capabilities in terms of micromachining and electro-mechanical devices (MEMS) implementation to develop new kind of circuits exhibiting enhanced electrical properties and/or functionalities (like reconfigurability) in microwave and millimeterwave frequency range.

**Methods** New breakthrough in microwave circuits is purposed by merging metamaterial concept with MEMS silicon-based technology potentialities. Metamaterial indeed opens to RF designers a wide range of design capabilities whereas micromachining of silicon brings a new way to create metamaterials and innovative solution to bring reconfigurability by exploiting the MEMS facilities.