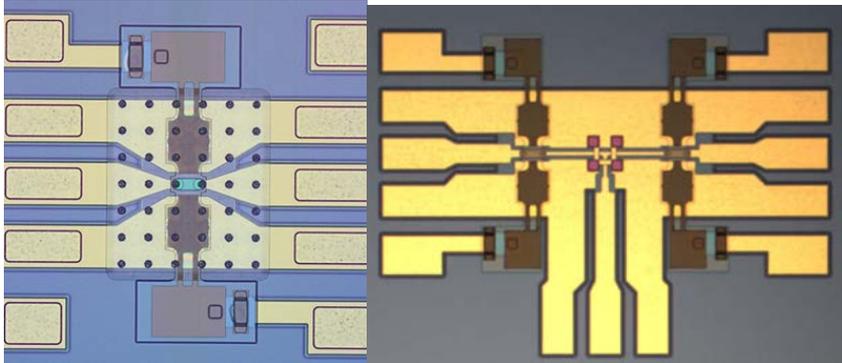


<b>Title:</b>	<b>“High Reliability MEMS Redundancy Switch”</b>		
<b>Contract type</b>	<b>TRP</b>	<b>Budget (K€)</b>	<b>870 k€</b>
<b>Company (-ies) (including country)</b>	CEA-LETI (FR); NKUA (GR), TAS (FR), CNRS-LAAS (FR)		
<b>Team (name of the participant in the project)</b>	CEA: B. Reig, C. Dieppedale, H. Sibuet, F. Souchon NKUA: G. Papaioannou, M. Koutsourelis TAS: B. Espana, O. Vendier, A. Renel CNRS-LAAS : F. Coccetti, N. Torres-Matabosch		
<b>(*) Speaker (s)</b>	G. Papaioannou	<b>Email</b>	gpapaioan@phys.uoa.gr
<b>Short Speaker Information (experience and involvement in this project)</b>	Prof. G. Papaioannou is with the Solid State Physics Section of Athens University. The research activities of his group are focussed on reliability of III-V and Si based semiconductor devices. During last decade a major effort is paid on the understanding of mechanisms of main reliability failure mode in RF-MEMS capacitive switches that is the dielectric charging arising from contacted or field emission charge injection and field induced polarization.		
<b>Summary of the activity (maximum 400 words)</b>	<p>The scope of the activity was to develop advanced RF-MEMS switches for DC to 60 GHz applications that require high reliability. Main performances specified in the frame of the project are:</p> <ul style="list-style-type: none"> <li>• SPDT with high isolation (50dB) and low losses (0,5dB) in Ku-band</li> <li>• Long term reliability: lifetime 15 years with 1000 actuation max</li> </ul> <p>In the project the key parameters for enhanced reliability were studied and a fabrication process of a switch was developed. The technology is based on a dielectric-less electrostatic actuation in order to prevent from failure due to dielectric charging. Ruthenium and gold metallisation were compared in order to obtain enhanced contact reliability.</p> <p>RF performances were measured, lifetime was evaluated, thermal behavior assessed. Main failure mechanisms coming from contact degradation, charging effect, creep, field emission were discussed.</p>		
			

(\*) The speaker needs to do the registration through the [website](#)