

**ABSTRACT****Process for fabricating an acoustic wave resonator comprising a suspended membrane**

The invention relates to a process for fabricating an acoustic wave resonator comprising a suspended membrane comprising a piezoelectric material layer, characterized in that it comprises the following steps:

- the production of a first stack comprising at least one layer of first piezoelectric material ( $C_{Piezo}$ ) on the surface of a first substrate;
- the production of a second stack comprising at least one second substrate;
- the production of at least one non-bonding initiating zone by deposition or creation of particles of controlled sizes leaving the surface of one of said stacks endowed locally with projecting nanostructures before a subsequent bonding step;
- the direct bonding of said two stacks creating a blister (CAV) between the stacks, due to the presence of the non-bonding initiating zone;
- the thinning of the first stack to eliminate at least the first substrate.

Figure 5

