

**PROCESS FOR TRANSFERRING A LAYER OF SINGLE-CRYSTAL SiC TO A POLYCRYSTALLINE
SiC CARRIER USING AN INTERMEDIATE LAYER OF POLYCRYSTALLINE SiC**

ABSTRACT

The invention relates to a process for fabricating a composite structure comprising a thin layer (12) of single-crystal silicon carbide, SiC, positioned on a polycrystalline SiC carrier substrate (20). This process comprises the following steps:

- forming a polycrystalline SiC layer (11) on a donor substrate, at least a surface portion of which is made of single-crystal SiC,
- before or after said forming, implanting ionic species in said surface portion of the donor substrate, so as to form a plane of weakness delimiting a thin single-crystal SiC layer (12) to be transferred,
- after said implanting and said forming, bonding the donor substrate and the polycrystalline SiC carrier substrate (20), the polycrystalline SiC layer (11) being at the bonding interface, and detachment of the donor substrate along the plane of weakness, so as to transfer the polycrystalline SiC layer (11) and the thin single-crystal SiC layer (12) onto the polycrystalline SiC carrier substrate (20).

Fig. 5