FIVE reasons for SiC on Venus

www.WorkingonVenus.se

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Background for SiC on Venus

- There are still things to be discovered about our nearest planet, even after 44 spacecraft sent to Venus since 1961.
- The USSR Venera landers could only work for about two hours due to the surface temperature of 460 °C.
- The NASA Magellan and ESA Venus Express collected data from orbit.
- To determine if there is volcanic activity, which is needed for better climate modeling both for Venus and Earth, an in-situ mission is needed to last for more than 2 hours.
Reason 1 for SiC on Venus

SiC Electronics can work for 2 months or even 2 years on Venus

http://dx.doi.org/10.1002/9781118678107.ch7
Reason 2 for SiC on Venus

SiC Integrated Circuits can work even at temperatures of 600 °C

http://dx.doi.org/10.4028/www.scientific.net/MSF.821-823.910

http://dx.doi.org/10.1557/mrs.2015.90
Reason 3 for SiC on Venus

SiC devices can handle extreme environments


http://dx.doi.org/10.1109/TNS.2014.2310293
SiC converters can be designed for higher frequencies and lower losses

http://dx.doi.org/10.1109/TIA.2013.2258132
Reason 5 for SiC on Venus

SiC gas sensors can go places where other sensors don’t survive


http://dx.doi.org/10.1109/JSEN.2011.2179645
and a reason for Si on Venus

Seismic sensors can reveal if there is ongoing volcanic activity (but it needs SiC readout electronics)


http://dx.doi.org/10.1016/j.sna.2015.12.025