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Electrical design of and reticulation to solar energy triggered microwave single mode system for sandstones processing: A feasibility study

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Abstract content (Max 300 words) http://events.saip.org.za/getFile.py/?target=_blank **Formatting & Special chars**

Sandstone, a weathered sedimentary aggregated rock, has been found in abundance in the Drakensberg mountain chains. The construction boom of 2009-2010 prompted by the soccer world cup in South Africa led to an increased market share in the use of sandstones. Principally artisanal mined in the Free State province in often family own small businesses, chisels and hammers are used in such labour intensive activity. Microwaves have been found to be able to ensure rock breaking especially along the grain boundaries of dissimilar minerals. The presence of a high solar intensity on the mountains of the Free State province in Qwaqwa and the possibility of designing and constructing a portable microwave cutter to effect the drilling and cutting of sandstones have been the motivating research factors. This paper will elaborate on the feasibility of the electrical design of and reticulation to solar energy triggered microwave single mode system for sandstones cutting. The design of and the construct the microwave single mode cavity to use will be discussed while , the required solar energy power to trigger / feed the magnetron of the microwave sandstone cutter will be calculated. The paper will end with a discussion on cavity materials to use.

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Hons

Main supervisor (name and email) and his / her institution

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