#### **SAIP2016**



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### Quantum state sharing of an arbitrary three particle state using Einstein-Podolsky-Rosen pairs and GHZ state measurements

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# Abstract content <br> &nbsp; (Max 300 words)<br><a href="http://events.saip.org.za/getFile.py/starget="\_blank">Formatting &<br>Special chars</a>

We propose a scheme in which Alice share an arbitrary three-particle unknown state with Bob1 and Bob2. Alice start by sharing Einstein-Podolosky-Rosen(EPR) pairs with her agents and then perform three joint threeparticle Greenberger-Horne-Zeilinger(GHZ) state measurements on her particles. Bob1 who acts as controller performs a product measurements in the x-direction on his particles whilst Bob2 retrieves the original state by performing three unitary operations on his particles. Subsequently we propose the generalized multiparty quantum state sharing of an arbitrary three particle state. This scheme can be applied for sharing of secret information in quantum communication networks.

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No

#### Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD, N/A)?

MSc

#### Main supervisor (name and email)<br>and his / her institution

Dr Mhlambululi Mafu

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