



# CERTIFICATE

Howard J. Marcum

participated in the International Congress of Mathematicians – ICM2018, held at Riocentro Convention Center, Rio de Janeiro, RJ, Brazil, from August 1–9, 2018 and presented the following Short Communication: “Composition formulae for some secondary and tertiary homotopy operations”.

Rio de Janeiro, August 9, 2018

  
Marcelo Viana  
ICM2018 Chair