

# Self-dual Einstein ACH metric and CR GJMS operators in dimension three

Taiji Marugame

Academia Sinica

E-mail: [marugame@gate.sinica.edu.tw](mailto:marugame@gate.sinica.edu.tw)

## Abstract

Let  $M$  be a three dimensional strictly pseudoconvex CR manifold. By refining Matsumoto's construction, we construct a one parameter family of ACH metrics  $g_{I,J}^\lambda$  ( $\lambda \in \mathbb{R}$ ) on  $M \times [0, \infty)$ , which solve the Einstein equation to infinite order. When  $\lambda = 0$ , the metric  $g_{I,J}^0$  is also self-dual to infinite order. As an application, we give another proof of the fact that a three dimensional CR manifold admits CR invariant powers of the sublaplacian of all orders, which was shown by Gover–Graham.