

The Generalized Degrees of Freedom of the Interference Relay Channel with Strong Interference

Author(s) - Institution(s):

Soheyl Gherekhloo, RUB

Anas Chaaban, RUB

Aydin Sezgin, RUB

Corresponding author email: soheyl.gherekhloo@rub.de

Corresponding WG group: SWG 2.1

Abstract:

The interference relay channel (IRC) under strong interference is considered. A high-signal-to-noise ratio (SNR)

generalized degrees of freedom (GDoF) characterization of the capacity is obtained. To this end, a new GDoF upper bound is derived based on a genie-aided approach. The achievability of the GDoF is based on cooperative interference neutralization. It turns out that the relay increases the GDoF even if the relay-destination link is weak. Moreover, in contrast to the standard interference channel, the GDoF is not a monotonically increasing function of the interference strength in the strong interference regime.