

# Constraints on the distance duality relation with standard sirens

- The distance duality relation (DDR) tells us how luminosity and angular distances are related. It can be violated by non-conservation of photon number.
- Standard sirens improve the constraints on such a violation by a factor  $\sim 1.4$  compared to SNIa + BAO constraints alone
- Modified gravity effects can bias these constraints, leading to a false detection of DDR violation by up to 10 sigma
- This biasing effect can be exploited as a smoking gun for a modified gravity model with a particular screening phenomenology.

