In this talk I will present joint work with Greg Galloway about certain aspects of asymptotically $AdS_2 \times S^2$ spacetimes (defined via the asymptotic behaviour of the metric in suitable coordinates). We show that any such spacetime satisfying the null energy condition must contain two continuous transversal foliations by totally geodesic null hypersurfaces intersecting in isometric, totally geodesic round 2-spheres. Recent work of Paul Tod argues that, while this is not enough for the spacetime to be isometric to $AdS_2 \times S^2$, this forces it to split as a product if one assumes the foliations to be smooth. A sufficient, but rather strong, condition for full isometry is given by the vanishing of the covariant derivative of the Ricci tensor. At the end of my talk I will briefly mention current work in progress concerning an alternative definition of asymptotically $AdS_2 \times S^2$ more similar in spirit to the usual definition of asymptotically flat.

Hierzu wird herzlich eingeladen.