THE FEFFERMAN-GRAHAM AMBIENT SPACES OF CONFORMAL PATTERSON-WALKER METRICS

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Situations in which Fefferman-Graham ambient metrics are known to exist as smooth Ricci flat metrics and not just as an infinite order expansion are rare, and situations in which they can be described explicitly are even rarer. While global existence and an explicit formula has been known for conformally Einstein structures for a long time, only recently have other classes of conformal structures been shown to allow an explicit global ambient metric. The topic of the present talk are conformal Patterson-Walker metrics. Patterson-Walker metrics are generically not conformally Einstein, but the ambient metric exists to all orders and can be realized in a natural way. As an application of the concrete ambient metric realization it is shown that Patterson-Walker metrics have vanishing Q-curvature. This talk is based on joint work with Katja Sagerschnig (Polytecnico di Torino) and Josef Šilhan, Arman Taghavi-Chabert and Vojtěch Žádník (Masaryk University Brno).