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**Wellposedness and scattering for the Zakharov system in four dimensions**

This is joint work with Ioan Bejenaru, Zihua Guo and Sebastian Herr. We consider the Cauchy problem for the Zakharov system in four space dimensions, extending the local wellposedness by Ginibre, Tsutsumi and Velo to wider range of Sobolev exponents, together with scattering for small data. We observe distinct phenomena at two extreme points of exponents. One is at the energy space, where our nonlinear estimates suffer from divergence related to the critical Sobolev embedding. We can however prove the results for small data, without any improvement of the estimates, but from the existence in a smaller Sobolev space and the uniqueness in a larger one, together with the conservation law. At another corner point of exponents, the critical space is also intermediate, but we obtain a strong illposedness result in terms of instantaneous exit or non-existence of weak solutions.