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Prim Plansangkate – Einstein-Weyl structures and dispersionless equations

Tuesday 28 September 2021 10:00 (1 hour)

We shall demonstrate via a simple transformation that, under symmetry assumption, the equations governing a general anti-self-dual conformal structure in four dimensions can be explicitly reduced to the Manakov-Santini system, which determines the three-dimensional Einstein-Weyl structure on the space of orbits of symmetry. Then we move on to discuss the mn-dKP equation, which is a generalisation of the dispersionless Kadomtsev-Petviashvili (dKP) equation in higher dimensions and is related to the Einstein-Weyl structures in n+2 dimensions. Its integrability can be investigated by constructing solutions constant on central quadrics.