1118-53-230 **Alexei Kovalev*** (a.g.kovalev@dpmms.cam.ac.uk), DPMMS, Centre for Mathematical Sciences, Wilberforce Road, Cambridge, CB3 0WB, United Kingdom. *Metrics with holonomy* Spin(7) *on generalized connected sums.* Preliminary report.

Berger's classification of the Riemannian holonomy contains two, closely related, exceptional groups G_2 and Spin(7) which occur on, respectively, 7- and 8-dimensional manifolds. Previously, the author gave examples of asymptotically cylindrical Riemannian 8-manifolds with holonomy Spin(7). Their cross-sections 'at infinity' are G_2-manifolds. Generalized connected sums of pairs of 8-manifolds with 'compatible' cross-sections are compact manifolds admitting Spin(7)-metrics, via a gluing argument; this includes topologically new examples. After briefly reviewing the above results, we shall show that the gluing of asymptotically cylindrical Spin(7)-manifolds also produces some examples which are diffeomorphic to compact, holonomy Spin(7) manifolds previously obtained by Joyce by a different method. We also show examples where the families of Spin(7)-metrics obtained by the two methods are deformations of each other. (Received February 01, 2016)