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„Intersection forms of almost-flat 4-manifolds.“

Abstract:

I will present an introduction to flat and almost flat manifolds. Then I will define a spin-structure on such objects and finally I will prove the following:

Let  $M$  be any almost-flat oriented 4-manifold different from the torus with intersection form  $Q_{\{M\}}$ . Then  $Q_{\{M\}} = 0$  if the first Betti number  $b_1(M) = 1$ ,  $Q_{\{M\}} = H$  if  $b_1(M) = 2$  and  $Q_{\{M\}} = 2H$  if  $b_1(M) = 3$ . Here  $H$  is the hyperbolic form with intersection matrix  $[0,1 \ 1,0]$  of rank 2.