

Analysis on complex manifolds

Problem set 5

for 9.5.2016

Exercise 1: Show that the sheaf of smooth sections of a vector bundle over a smooth paracompact manifold is fine.

Exercise 2: Show that the sheaf of holomorphic sections of a holomorphic vector bundle over a compact complex manifold is not necessarily fine.

Exercise 3: Assuming the existence of a fine torsionfree resolution for the constant sheaf \mathbb{Z} , show that there is a cohomology theory for sheaves on a paracompact topological space X .

Exercise 4: Show that between two cohomology theories of sheaves on X , there is exactly one homomorphism.