

An Adjoint Equivalence of the Category IS of Inverse-sheaves *

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We have obtained the category IS of r ($r \geq 0$)-dimensional inverse-sheaves of open sets of R^n and the following

Theorem 1 *Let $U : C^r \rightarrow IS$ be the forgetful functor. Then there is an adjoint equivalence $\langle IM, U; \eta, \epsilon \rangle : IS \rightarrow C^r$.*

Corollary 1 *C^r -manifolds (X, ϕ) and (Y, ψ) are diffeomorphic iff $U(X, \phi)$ and $U(Y, \psi)$ are isomorphic.*

Corollary 2 *Any C^r -manifold is diffeomorphic to its manifold of type inverse-sheaf.*

Corollary 3 *For any inverse-sheaf $\langle F, \rho \rangle$ of open sets of R^n on B_F , there is a C^r -differential structure on B_F .*

For any C^r -manifold (X, ϕ) , we have defined its weak-sheaf $[G_r^X, \rho]$ of groups.

Theorem 2 *C^r -manifolds (X, ϕ) and (Y, ψ) are diffeomorphic iff $[G_r^X, \rho] = [G_r^Y, \rho']$.*

A presheaf satisfying (M) and (G') on B is called a weak-sheaf. Where B is a basis which is closed for non-empty open subsets.

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