by zero is not the constat sheaf Z any longer.

Because. $\mathcal{F}(U) = \mathcal{F}(U \cap (\mathbb{C} - \mathring{D}^2)) = 0$ if $U \subset \mathring{D}^2$.
$\quad\quad\quad\quad\quad\quad\quad\quad\quad \| $
$\quad\quad\quad\quad\quad\quad\quad \mathcal{F}(\phi)$. (see P 39)))

The Lefschetz theorem on hyperplane sections is, of course, purely topological. There is another proof using a little Morse theory; we will give here a sketch of the argument:

To begin with, suppose that A is a compact manifold, $B \subset A$ a smooth submanifold, and $\varphi : A \to R^+$ a C^∞ function s.t $\varphi^{-1}(0) = B$. A critical point $x_0 \in A$ of φ is a point s.t $d\varphi(x_0) = 0$; $\varphi(x_0)$ is called a critical value of φ. At each critical point the Hessian $\frac{\partial^2 \varphi}{\partial u_i \partial u_j} = H(\varphi)$ is a well-defined quadratic form in the tangent space $T_{x_0}(A)$: the critical point is nondegenerate in case $H(\varphi)$ is nonsingular. The function φ is called a Morse function if all critical points of φ are nondegenerate; according to a standard approximation theorem, such functions are dense in the C^2-topology.

((See P 147. Hirsch. Differential Topology Th.1. 2.
For any manifold M, Morse functions form a dense open set in $C^s_S(M, R)$. $2 \leq s \leq \infty$,

$$C^r_S(M, R) \quad 2 \leq r \leq \infty.$$))

By the main lemma of Morse theory, if φ is a Morse function and the Hessian $H(\varphi)$ is nonsingular