AG seminar. (A. Noble)

Def. $B \subseteq \mathbb{R}^m$ domain. $\{M_{\underline{t}}\}_{\underline{t} \in B}$ c.c.m. is a D.F. if $\exists\ \mathcal{M}$ smooth mfld, $\exists\ \omega : \mathcal{M} \to B$ smooth, surjective satisfying:

i) $\forall p \in \mathcal{M}$, $\operatorname{rk} \operatorname{Jac}(\omega)_p = m$
ii) $\forall \underline{t} \in B$, $\omega^{-1}(\underline{t})$ cpt cpx subspace of $\mathcal{M}$
iii) $\forall \underline{t} \in B$, $\omega^{-1}(\underline{t}) = M_{\underline{t}}$
iv) $\exists$ locally finite open cover $\{U_j\}_{j \in J}$ of $\mathcal{M}$ s.t. $\exists$ $z_j : U_j \to \mathbb{C}^n$ C^∞ fons s.t. $\forall \underline{t} \in B$, $\{p \mapsto z_j(p) \mid U_j \cap \omega^{-1}(\underline{t})\}$ is a system of local hol. coordinates.

Def. If M c.c.m & $\exists (\mathcal{M}, B, \omega)$ s.t. $\exists\ \underline{t}_0 \in B$ & $\omega^{-1}(\underline{t}_0) = M$, we call $M_{\underline{t}}$ $\forall \underline{t} \in B$ a deformation of M.

Def. $\vartheta(t) \in \check{H}^1(M_t, \Theta_t)$ is called an infinitesimal deformation.

Def. 2 DF.s $(\mathcal{M}, B, \omega)$, $(\mathcal{N}, B, \pi)$ are said to be equivalent if $\exists\ \varphi : \mathcal{M} \to \mathcal{N}$ diffeo and $\varphi_{\underline{t}} : M_{\underline{t}} \to N_{\underline{t}}$ are biholomorphisms.

Def. $(\mathcal{M}, B, \omega)$ trivial if $\sim (M \times B, B, \omega)$ for some $\underline{t} \in B$ and $M = \omega^{-1}(B)$
Locally trivial if $\forall$