Bruzzo Lie algebra cohomology -L Lie algebra over R M vep. [L

M& 1ºL' Hom (1ºL, M)

R

(x, x, x, y, 1)

\$\frac{1}{5} \in CP(L, M), d\frac{5}{5} = \frac{5}{(-)} \cdot j \frac{5}{5} \left( [x, x, j] \dot x, x, y)

+ \frac{1}{5} \left( [x, x, j] \dot x, x, y)

+ \frac{1}{5} \left( [x, x, j] \dot x, x, y) + y.c. sheaf on X, 21 open affine cover. HP(U,4) 4-> HP(X,7) 0 -> 7 -> 6°(u, 4) -> . . -0 -> 7 -> 6°(u, 4) -> . --Lemma X noeth scheme, 4 6 (Q(ohx). 7 embeds into a flabby y.c. Sheaf. Pf. U. ZU: 3 aff open cover, Flo: = M: M: an A:-module (where X/U: 5 Specti).

Tembeds into a flabby q.c. sheaf.

Pf. U. ? U: } aff open cover, flo: = M: M:

an A:-module (where Xlo: 5 pec ti).

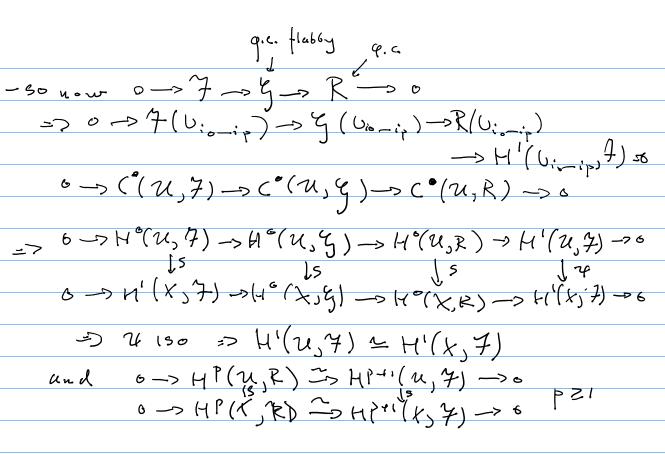
Put 0->Mi->T: => 0->M: ->T.

Denote f: U: C> X and put g:: >fix(Ti).

for 36 H(U) > 5loro: 6 H(U:10) +> fix(Ti).

So by construction, 7 c> G, and g

is flabby, q.c.



Thm. (Lesay) & etop, 7 & Shx, 21 = {U;3 open cover and H9(U:-ips7) = 0 + y>0, for all intersections.

Then HP(U,7) ~ HP(X,7), p20.

-put HP(X,7):= lim HP(U,7) where the covers are ordereling by refinement

 $=> HP(U,Y) \longrightarrow HP(Y,Y)$   $H'(X,Y) \xrightarrow{\gamma}$ 

Thm If X paracompact, up 150 tp.

Det. In open cover is locally finite if every ptet has a ublid intersecting only a finite # of sets & U.

Def. X para compact if Haus los of I every open cover admits a loc fix-refin.

-given se7(x), put supp(s)= {4ex | 5x =6} (closed) -tuke Sheaf of sings Ron X -a partition of onity subordinated to a loc. fin.
open coves U= ?U: fiet is a collection &siet(x) hier S.f. 1) Supp  $(S:) \subset U;$  11)  $\underset{f \in \Gamma}{Z} S:=1$ . Def Ristine if, tloc. fin. open cover Us
there is a partition of unity subordinated
to U.

Of R -e.g. diff. mfds, paracpt, top. sp. -MR-module Rfine, Uf.o.c. => HP(U, R) >0 > P >0 Pf. tuke partition of unity 28i3, Le ("(U, n), Define (Kd): == == == (-)K == sidio-j-iq-1 so K: C(u,h) -> C9-1(u,n). Now show Kos+80k=1d-0, i.e. the cohomology is homotopic to that of a point. over a paracpt, space X => HP(X, M)>0, p>0

-note that for O-7(R-> Six-> Six-> .- ,

every Six a Cix-nodule re. It is fine

=> HP(x, Six) =0 , Hp>0, Hy>6 => HP(RX)=KUR(X)

-if X, Y homotopic diff mfd => HIR(X) = HUR(Y)

Mayer-Vietoris sequence

$$\circ \longrightarrow \Omega^{\bullet}(\chi) \longrightarrow \Omega^{\bullet}(v) \oplus \Omega^{\bullet}(v) \longrightarrow \Omega^{\bullet}(u \cap v) \rightarrow \circ$$