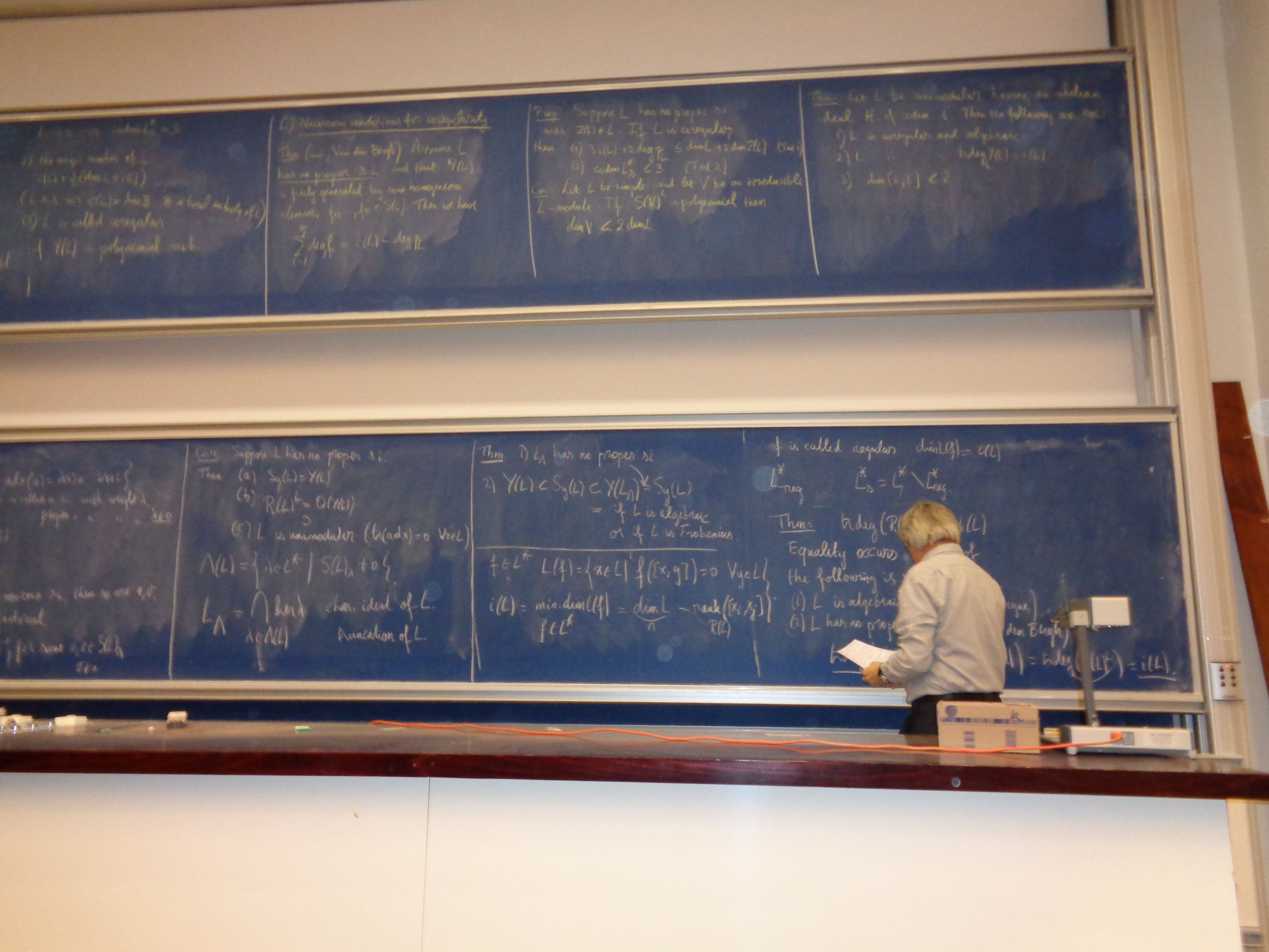
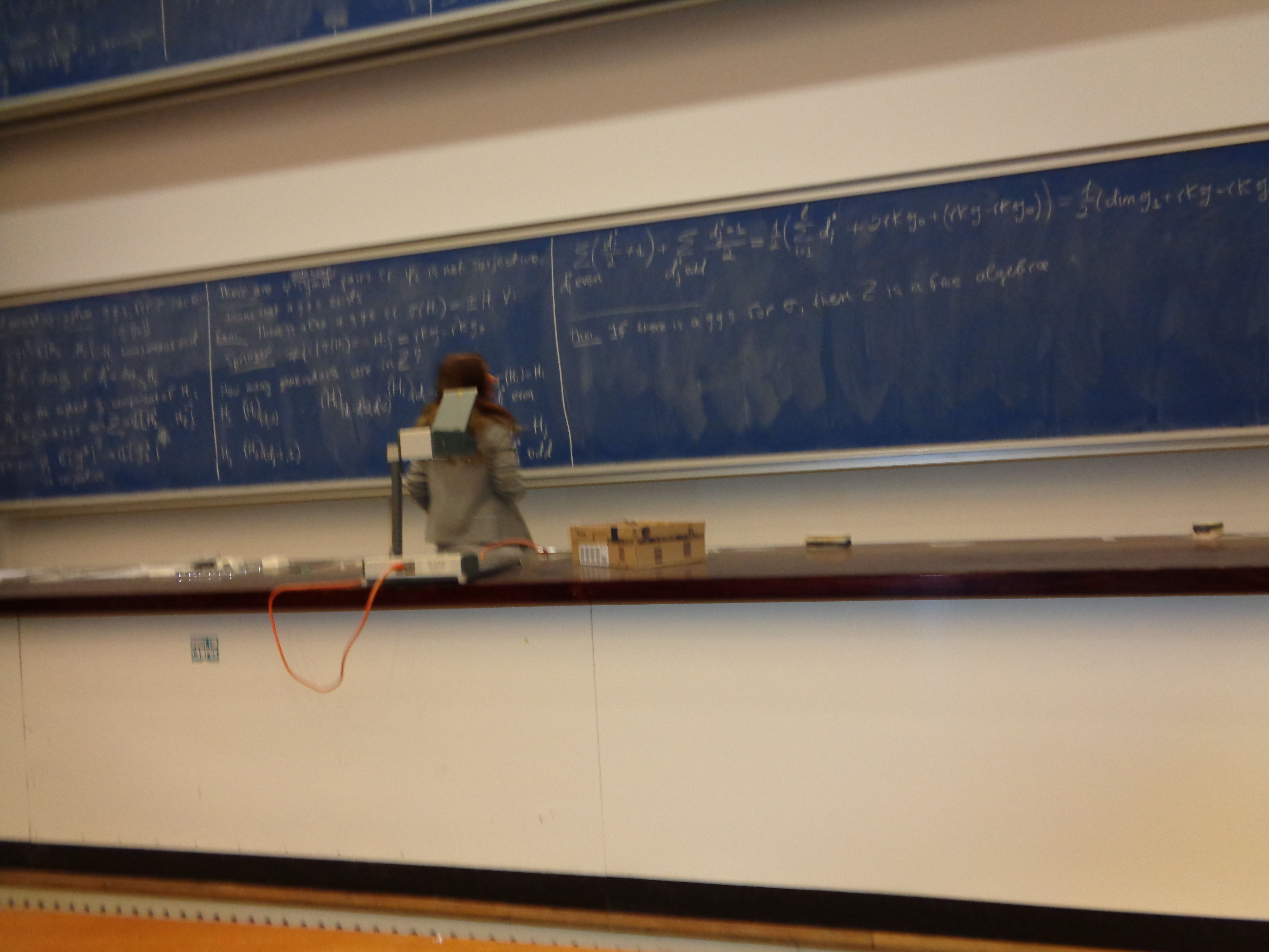
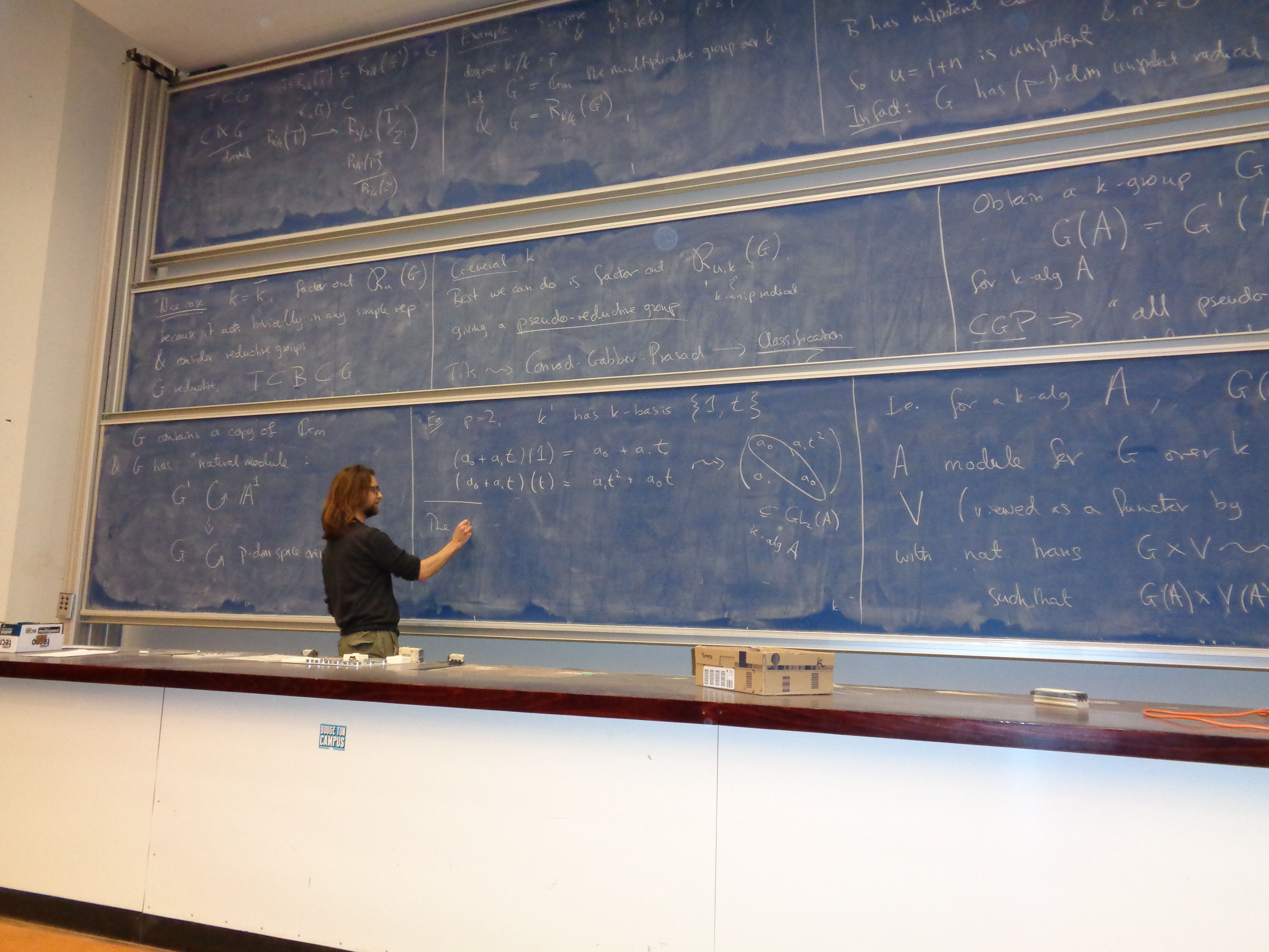
How to describe the set
Let X be an affine variety
Theorem
affine algebraic group acting on X. Let x, y ∈ X
There exists
valuation algebra
such that
There exists
R = alg generated by
where
λ is a R-algebra
There is a prime ideal



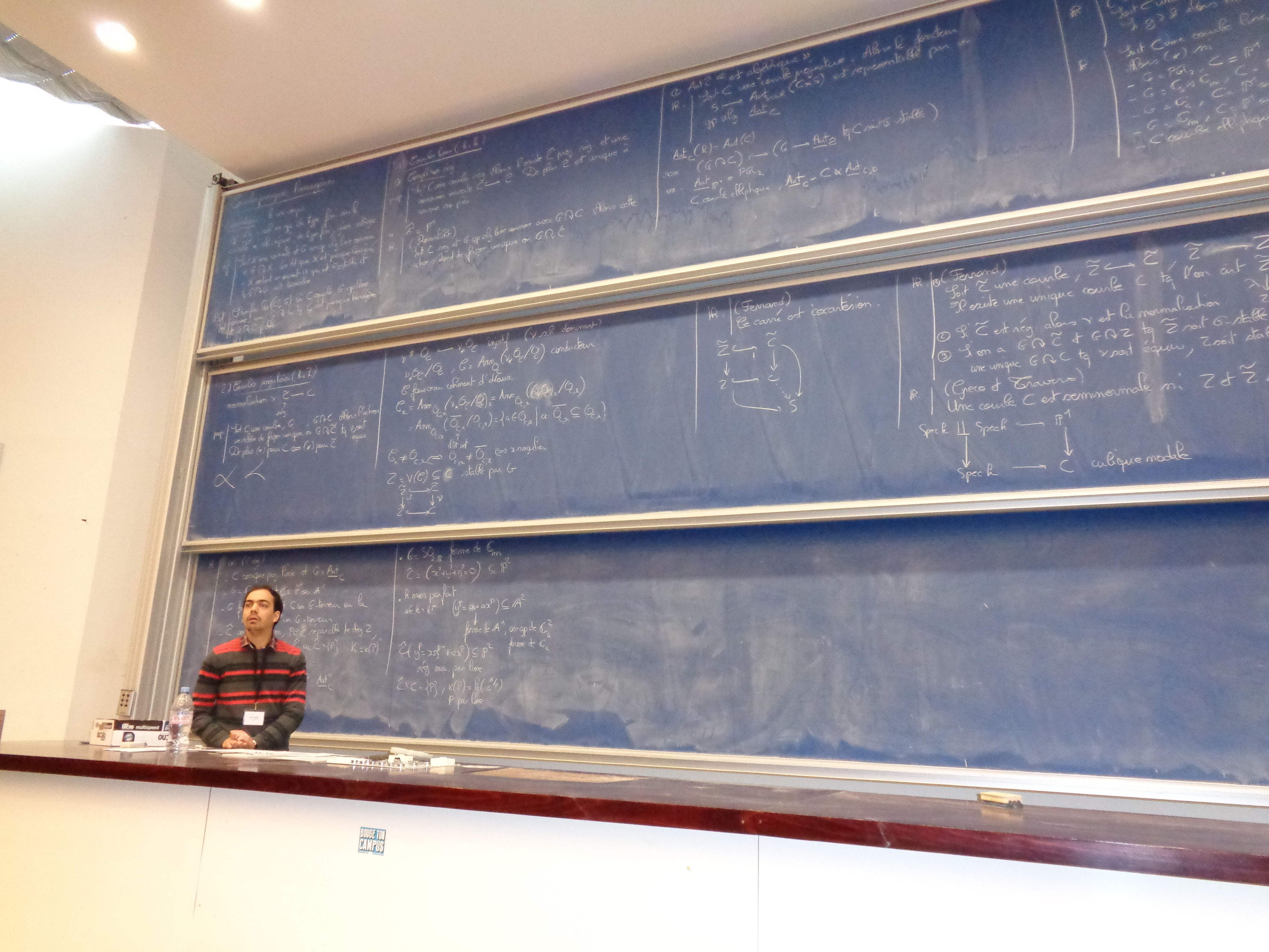
Thm: (..., Van den Bergh) Assume L has no proper si. and that Y(L) is freely generated by some homogeneous elements f1, ..., fr ∈ S(L). Then we have
Σ deg fi = i(L) − deg pL
Prop: Suppose L has no proper si with Z(L) ≠ L. If L is coregular then (i) 3 i(L) + 2 deg pL ≤ dim L + 2 dim Z(L)
(ii) codim L*s ≤ 3
Cor: Let L be simple and let V be an irreducible L-module. If S(V)^L is polynomial then dim V < 2 dim L
Thm: Let L be unimodular having no abelian ideal H of codim 1. Then the following are eqv:
1) L is coregular and algebraic
3) dim [L, L] < 2
Cor: Suppose L has no proper si.
Then (a) Sy(L) = Y(L)
(b) R(L)^L = Q(Y(L))
(c) L is unimodular (tr(ad x) = 0 ∀x∈L)
Λ(L) = {λ ∈ L* | S(L)λ ≠ 0}
LΛ = ∩ ker λ, λ ∈ Λ(L) — char. ideal of L. truncation of L.
Thm 1) LΛ has no proper si
2) Y(L) ⊂ Sy(L) ⊂ Y(LΛ) = Sy(L)
= if L is algebraic or if L is Frobenius.
f ∈ L* L(f) = {x ∈ L | f([x, y]) = 0 ∀y ∈ L}
i(L) = min dim L(f), f ∈ L* = dim L − rank([xi, xj])
f is called regular dim L(f) = i(L)
L*reg L*s = L* \ L*reg
Thm: trdeg (R... i(L)
Equality occurs ...
the following is ...
(i) L is algebraic
(ii) L has no prop...
... = trdeg ... = i(L).



Thm. If there is a ggs for σ, then Z is a free algebra


Example: Suppose
& k' = k(t)
degree k'/k = p
Let G' = G_m the multiplicative group over k'
& G = R_{k'/k}(G')
B has nilpotent
So u = 1+n is unipotent
So G has (p-1)-dim unipotent radical
In fact: G has
Obtain a k-group G
G(A) = G'(A
for k-alg A
CGP ⇒ "all pseudo-
"Nice case" k = k̄, factor out R_u(G)
because it acts trivially in any simple rep
& consider reductive groups
G reductive. T ⊂ B ⊂ G
General k
Best we can do is factor out R_{u,k}(G)
k-unip radical
giving a pseudo-reductive group
Tits ⇝ Conrad-Gabber-Prasad → Classification
G contains a copy of G_m
& G has "natural module":
G' ↷ A^1
G ↷ p-dim space over k
Eg p=2, k' has k-basis {1, t}
(a_0 + a_1 t)(1) = a_0 + a_1 t
(a_0 + a_1 t)(t) = a_1 t^2 + a_0 t
∈ GL_2(A)
k-alg A
The
I.e. for a k-alg A, G(
A module for G over k
V (viewed as a functor by
with nat trans G × V ⇝
such that G(A) × V(A)
BOUGE TON CAMPUS


Upper triangular form of $\mathcal{SE}_B$ and $\mathcal{SN}_B$
Example ($B = (4, 3^2, 2, 1)$)
With respect to $\Delta_{B,\prec}$ a generic element of $\mathcal{SN}_B$ is
BOUGE TON CAMPUS


(Fernand)
Ce carré est cocartésien.
(Greco et Traverso)
cubique nodale
faisceau cohérent d'idéaux
stable par G
BOUGE TON CAMPUS