Thm: If G is a countabled ICC group, then COGO is a factor Circ. center is GIO.
Proof: A general alement of x6C600 is of the form x= Eget-cyug wi ug-legs, cgell. Elegized cand other conditionss.
Il xeZCLLOSS, then xun=unx the6, so Eglytyk=Eglylling. Left side: change variable gh-sg con growth.
Right side: kgmag coo girkings. So, Egcyning = Egchigus => Cgni=Chig Uges. Call high, so gakh. Then Chini-1=Ch Utihes
So, c :> constant on Ehhh-1: heGl = conjugacy class of h. HhEGo
c highly non-Abelian
An ICC Continite conjugacy classed group is a group G such that all conjuctores cercupt the one of ed are infinite.
So, if G is ICC, c must be 0 on all those conj. closes. => Cy=0 Ug=e => x= Ecylig=celle & G.I.
and is a some C was as a six with south rivings - a shapp a dist - a shall a state of and
Emmples of ICL Grongs: •G=SUCN, 30= [AGMnCGD: def CAD=1], n23
· G=U==Sn = 16: N-> N genmutation: BCID=i Vi large 1.
O - O - E D - IN -
· G=IFn cn223 free group
Also <71,020
j.
Recall: TERAN is called positive CT203 if T=T* and GCTJC[0,00].
Equipmently Culthough not easy to seed 730 iff T=x*x for X6BCHD.
BCHD+ = come of positive operators is closed to + and mult. by positive scales.
CID IF T20, then TENTIL-1 Concerning HTH-1-720).
title unitary diagonalization & supecto
Indeed, win Cont. Fet. Calculus, we identify T with foresz, 266073. For F. it is clear that fores = liferall
C73 IF TES and yellcho, then yzy+ = y5y+. Con't veally use CFC, unless y commutes
Indeed, we know 5-720 and went yes-724 200 5-7= X4X for some XEDEN, so yes-724= xxx x = 8x2 w 3=xy4.

	Yack, ack
	area! along
Start with any unital algebra A over a with an impolation & CADAMORESA S.A. Cat	10 = a+ +b+. (a-b)+ b+ a+. (A-c)+= Ia+)
and with miles of the political and the politica	AND THE PERSON NAMED OF TH
and a faithful state p:A-DC Cp is linear, pex-x320 w = iff x=0, pes=10.	
Exemples: CTD A=CCCONDD LI fA= F and yefo= Scond Wf.	
CED A = $U_{m21}M_{2}$ and when = \overline{X}^T and plane = I_{m2} and I_{m2}	
CTO 11 - ONIT (115 - CTO CT X - X SWO AINISM - CTMSW CT - 154 - (A) AK-	
Here Macco as Myco in x mo (x). Similarly, Myco wa x mo (x).	
The GNS Construction:	F A=CC(0,13) - p=S, H=(3(0,13).
	\
Company to the second of the s	, CH
From CA:40 we construct a Hilbert space H and an injective *-movephore 11: A- OCH	D as follows:
Octine Cxiyy= pCyax) VxiyeA. In protecular, lixllary= Cxixy = pcxxxy Doctine H=	A Harp the to a Hilbert sace
and the fall to and any and franchist the state of the st	m , in a milett seace.
Su, A embedo in H. To moid confusion, we write a when we think of a EA as	on element of Ho So, H= [a:aeA] "112,10.
to constant of the contract our seasons of the case of the contract of the con	all H.
ab. ab.	
Ee ta	
So, if bu-oxell and bu'-oxell on bu, bu'eA, with limiteable eliminates bu' cand limite exists).
ab "	
13t: 117(0)6112, y = 11ab112, y = p (6" = a6)12 = p (6" 116" a116)12. 8 (11)1 fuith next time!	
134: 114(c)0, 15/4 (140) 15/4 6 CO. C. 400 6 CO 115. 41100 8 0011 + 1211 4634 + 12016.	