

Department of Mathematics, BGU

Arithmetic applications of o-minimality

On *Tuesday, June ,29 2021*

At *11:10 – 13:00*


In *online*

Et al

will talk about

Assorted topics

Abstract: Shimura varieties, the end of section 3 and possibly additional topics



S/\mathbb{C} als VAV

V.H.S on S :

V/S local system. $/\mathbb{R}$

$V \otimes \mathcal{O}_S$ - a v.s $/S = V_S$

$\nabla: V_S \rightarrow V_S \otimes \Omega_S^1$

$v \in V \quad \nabla v = 0$

+ $F^{i+1} \subset F^i \subset \dots \subset V_S$

$\nabla F^i \subset F^{i-1} \otimes \Omega_S^1$

-

For each $s \in S$

$V_s + F^i \cap V_s$ a pure H.S.

$X \xrightarrow{\pi} S$ proper.

$V = \mathbb{R}^i \pi_* \mathbb{R}$ a v.H.S.

Periods domains $\Gamma \setminus D$

Period map $\phi: S \rightarrow \Gamma \setminus D$

. arifmetik : ϕ analytisch

Bakter, klinisch, immerman
 ϕ definierbar..

. Conj; Im ϕ ist algebraisch

arithmetik: V/S

. $S \rightarrow \mathbb{P}^1 \setminus D$

$S \subset \overline{S}$, $\overline{S} - S = \mathbb{F}$

cu

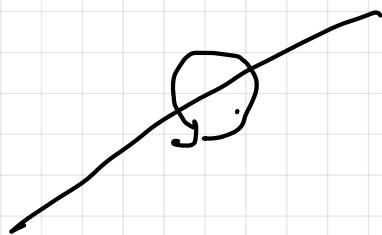
$$S \subset \mathbb{F} \quad S \in \mathcal{U} \cong \Delta^n$$

$$\Delta = \{ |x| < \varepsilon \}$$

$$U \cap S \cong \Delta^k \times \Delta^{n-1}$$

local boundary = Poincaré-Lefschetz

operator.



Assume : local boundary has finite
image. \Rightarrow tubular neighborhood

\hookrightarrow

$$\overline{S} \supset S^* \supset S$$

$S \cup$ points with fin boundary

Criteria: 1. ϕ extends
to S^*

2. $\phi: S^* \rightarrow \mathbb{R} \setminus D$ proper

3. $\phi(S^*)$ is closed in $\mathbb{R} \setminus D$

4. $\phi(S^*) - \phi(S)$ analytic
subvariety

Please Note the Unusual Time!