



Leibniz  
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## Oberseminar Institut für Algebraische Geometrie

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### Are constructions on universal objects necessarily “canonical”?

Let  $g \geq 3$  be an integer. Let  $\mathcal{M}_{g,n}$  be the moduli space of  $n$ -marked genus  $g$  curves, and let  $\pi: \mathcal{M}_{g,n+1} \rightarrow \mathcal{M}_{g,n}$  be the tautological family. Let  $C_{g,n}/K_{g,n}$  be the generic fiber of  $\pi$ . It is a smooth genus  $g$  curve defined over the function field of  $\mathcal{M}_{g,n}$ . Richard Hain proved that the  $K_{g,n}$ -points of  $C_{g,n}$  are exactly given by the tautological sections. Stefan Schroër showed that every line bundle on  $C_{g,n}$  is necessarily a power of the canonical bundle twisted by the tautological sections. These results motivate one to ask if every construction on the generic object admits a “canonical explanation”. We give some positive results for rational points on generic hypersurfaces, and pose some candidates to a rationality problems over non-closed fields.

**Donnerstag , 14.10.2021**

**16:30 - 17:30, Raum B302**

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**Alle Interessierten sind herzlich eingeladen.**