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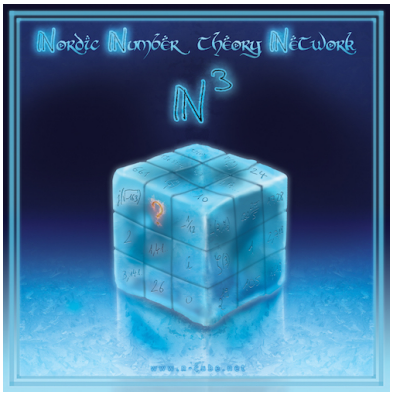
Nordic Number theory Network Days XXV

Aarhus University,
November 27 – 28, 2026
organised by Simon Kristensen and Paul Nelson.



Program:

	Friday 27.11			Saturday 28.11
13:00-13:10	*Foreword*	◇		
13:10-14:00	**Michael Coons**	◇	09:10-10:00	**Yujie Xu**
14:00-14:20	*Coffee break*	◇	10:00-10:20	*Coffee break*
14:20-15:10	**Farbod Shokrieh**	◇	10:20-11:10	**Kristian Holm**
15:10-15:30	*Coffee break*	◇	11:10-11:30	*Coffee break*
15:30-16:20	**Blanca Gil Rosell**	◇	11:30-12:20	**Matthew du Coursy-Ireland**
16:20-16:40	*Coffee break*	◇	12:30	*Farewell*
16:40-17:30	**Bill Mance**	◇		
18:30	*Social event*			

Abstracts

TIME: Friday 27, 13:10-14:00.
ROOM: Aud G2 (1532-122).
SPEAKER: **Michael Coons** (California State University, Chico, and Aarhus University).
TITLE: *Some properties of ℓ-ary partition functions.*
ABSTRACT: We consider $b_{k,\ell}(n)$, the number of ways to write an integer n as the sum of power of ℓ with each power appearing at most k times. By exploiting the fact that the generating functions of these partitions are Mahler functions, we explore the questions of Calkin and Wilf concerning smoothness and (time permitting) monotonicity.

TIME: Friday 27, 14:20-15:10.
ROOM: Aud G2 (1532-122).
SPEAKER: **Farbod Sokrieh** (University of Washington and University of Copenhagen).
TITLE: *Canonical heights and Berkovich spaces.*
ABSTRACT: I will discuss canonical local heights on abelian varieties over non-archimedean fields from the point of view of Berkovich analytic spaces and tropical geometry. In particular, I will give refinements of some of Néron's classical results and also revisit Tate's explicit formulas for Néron's canonical local heights on elliptic curves (involving Bernoulli polynomials). Based on joint work with Robin de Jong.

TIME: Friday 27, 15:30-16:20.
ROOM: Aud G2 (1532-122).
SPEAKER: **Blanca Gil Rosell** (Aarhus University).
TITLE: *Subconvex bounds for orthogonal groups and triple products*
ABSTRACT: In this talk, I will discuss subconvex bounds for triple product L-functions in the depth aspect, where all three representations become increasingly ramified at the same fixed finite place. The bounds are uniform as the three factors vary subject to the condition that the conductor does not drop. This goes beyond previous works in which one or two of the representations are fixed.

This work was motivated by the idea of extending subconvexity methods from unitary groups to orthogonal groups. The proof of the triple-product bound adapts the amplification and relative pretrace inequality approach developed for unitary groups by Nelson `2020arXiv201202187N`, Hu–Nelson `2023arXiv2309.06314`, and Marshall `2023arXiv2309.16667` to the triple-product setting.

TIME: Friday 27, 16:40-17:30.
ROOM: Aud G2 (1532-122).
SPEAKER: **Willian Mance** (Adam Mickiewicz University, Poznań).
TITLE: *TBA.*
ABSTRACT: TBA

TIME: Saturday 28, 09:10-10:00.
ROOM: Aud G2 (1532-122).
SPEAKER: **Yujie Xu** (Columbia University).
TITLE: *A categorical local Langlands correspondence for quasi-split reductive groups.*
ABSTRACT: I will talk about my joint work with David Helm and Maarten Solleveld on categorical local Langlands correspondence for quasi-split reductive groups. If time permits, I will mention some arithmetic applications.

TIME: Saturday 28, 10:20-11:10.
ROOM: Aud G2 (1532-122).
SPEAKER: **Kristian Holm** (Christian-Albrechts-Universität zu Kiel).
TITLE: *A few memorable moments on spaces of lattices*
ABSTRACT: The space $\mathsf{Y}_{2n} = \mathrm{Sp}(2n,\mathbb{R})/\mathrm{Sp}(2n,\mathbb{Z})$ can be identified with the collection of all unit-covolume *symplectic* lattices in $\mathbb{R}^{2n}$; these are distinguished by the property that $\omega(\Lambda,\Lambda) \subseteq \mathbb{Z}$, for the standard symplectic bilinear form ω on $\mathbb{R}^{2n}$. I will discuss some classical results from the measure theory of lattices and present a new integration formula for the second moment over the space Y_{2n} of the *Siegel transform* $F(\Lambda) := \sum_{\mathbf{v}\in\Lambda} f(\mathbf{v})$ of a test function $f : \mathbb{R}^{2n} \to \mathbb{C}$. This is joint work with Seungki Kim.

TIME: Saturday 28, 11:10-12:20.
ROOM: Aud G2 (1532-122).
SPEAKER: **Matthew de Courcy-Ireland** (Stockholm University).
TITLE: *Divisibility by p for Markoff-like surfaces.*
ABSTRACT: The Markoff surface is a cubic surface with the special feature that it is only quadratic in each variable separately. Exchanging the two roots of such a quadratic produces new solutions from old, which enabled Markoff to find all the integer solutions. Since work of Bourgain-Gamburd-Sarnak, it has become possible to understand how the integer solutions are related to the solutions modulo primes. Given a large prime modulus, all solutions to the congruence can be shown to lift to integer solutions, as was conjectured by Baragar. A crucial input to this lifting is a theorem of W. Y. Chen that every orbit of solutions modulo p under the root-switching moves has size divisible by p. Another method for divisibility by p was given later by D. E. Martin.

This talk is based on joint work with Matthew Litman and Yuma Mizuno, where we generalise Martin's method to a family of Markoff-like surfaces with extra off-diagonal terms. We also obtain related results for higher-dimensional Markoff-Hurwitz hypersurfaces.