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### Oberseminar ZAHLENTHEORIE

Am Dienstag **11. Juli** findet im Oberseminar Zahlentheorie **um 16:00 Uhr** im Raum **S0.103 im BSZ** folgender Vortrag statt:

- Dr. Ade Irma Suriajaya (Tokyo):

A new zero-free region for the first derivative of Dirichlet  $L$ -functions

Der Abstract zu dem Vortrag auf der Rückseite.

**Interessierte Zuhörer sind herzlichst willkommen!**

Mit freundlichen Grüßen,

Jörn Steuding.

Dr. Ade Irma Suriajaya (Tokyo):

A new zero-free region for the first derivative of Dirichlet  $L$ -functions

Yildirim in 1996 investigated many properties of zeros of the derivatives of Dirichlet  $L$ -functions associated with primitive Dirichlet characters. Among, he proved a zero-free region and classified zeros of the derivatives of these Dirichlet  $L$ -functions into trivial, nontrivial, and “vagrant” zeros. In this talk, we show the nonexistence of these vagrant zeros for the first derivative of these  $L$ -functions by showing an improved zero-free region.

Speiser in 1935 showed that the Riemann hypothesis is equivalent to the first derivative of the Riemann zeta function having no zeros on the left-half of the critical strip. In this talk, we also introduce an analogue of this equivalence condition for Dirichlet  $L$ -functions when the associated modulo is not small. Namely, we show an equivalence condition for the generalized Riemann hypothesis, stated in terms of the distribution of zeros of the first derivative of Dirichlet  $L$ -functions associated with primitive Dirichlet characters with not so small modulo.

This is a joint work with Prof. Hirotaka Akatsuka.