



# Analytic Number Theory Seminar

## Quadratic non-residues and non-primitive roots satisfying a coprimality condition

**Subha Sarkar (Harish-Chandra Research Institute)**

**Host: Timothy Browning**

Let  $q \geq 1$  be any integer and let  $\epsilon \in [\frac{1}{11}, \frac{1}{2})$  be a given real number. In this talk, we prove that for all primes  $p$  satisfying

$$p \equiv 1 \pmod{q}, \quad \log \log p > \frac{\log 6.83}{\frac{1}{2} - \epsilon} \quad \text{and} \quad \frac{\phi(p-1)}{p-1} \leq \frac{1}{2} - \epsilon,$$

there exists a quadratic non-residue  $g$  which is not a primitive root modulo  $p$  such that  $\gcd\left(g, \frac{p-1}{q}\right) = 1$ .

This is a joint work with Mr. Jaitra Chattopadhyay, Ms. Bidisha Roy and Prof. R. Thangadurai.

**Thursday, October 31, 2019 at 11:00 am**  
**IST Austria Campus Heinzl Seminar Room / Office Bldg West (I21.EG.101)**



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage (note that the IST Shuttle times are highlighted in dark green):  
[https://ist.ac.at/wp-content/uploads/2019/03/IST\\_Shuttle\\_Bus\\_timetable.pdf](https://ist.ac.at/wp-content/uploads/2019/03/IST_Shuttle_Bus_timetable.pdf)  
The IST Shuttle bus is marked IST Shuttle and has the Institute Logo printed on the side.