

**Stanislaw L. Woronowicz**    **Monday, July 14, 15:05–15:50, Room B1**  
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*The trace formula for Haar weight on locally compact quantum groups*

Let  $x$  and  $p$  be quantum mechanical position and momentum operators acting on  $L^2(\mathbb{R})$  and  $f$  and  $g$  be  $L^1$  functions on  $\mathbb{R}$ . Then

$$\mathrm{Tr} f(x)g(p) = \frac{1}{2\pi} h(f)\hat{h}(g),$$

where  $h(f)$  and  $\hat{h}(g)$  denote the integrals of  $f$  and  $g$  over  $\mathbb{R}$ . The analogous formula holds when  $\mathbb{R}$  is replaced by any locally compact quantum group. Starting with this formula we shall discuss a number of unsolved problems in the theory of locally compact quantum groups.