

**U. Haagerup**, Odense University.

**Title:** Solution of the Effros-Ruan conjecture for bilinear forms on C\*-algebras

**Abstract:** In 1991 Effros and Ruan conjectured that a certain Grothendieck type inequality for a bilinear form on a pair of C\*-algebras holds if (and only if) the bilinear form is jointly completely bounded. In 2002 Pisier and Shlyakhtenko proved that this inequality holds in the more general setting of operator spaces, provided that the operator spaces in question are exact, in particular they proved the Effros-Ruan conjecture for pairs of exact C\*-algebras. In a recent joint work with Magdalena Musat we prove the Effros - Ruan conjecture for general C\*-algebras (and with constant one), i.e. for every jointly completely bounded (jcb) bilinear form  $u$  on a pair of C\*-algebras  $A, B$  there exists states  $f_1, f_2$  on  $A$  and  $g_1, g_2$  on  $B$ , such that  $|u(a, b)| \leq \|u\|_{jcb} (f_1(aa^*)^2 g_1(b^* b)^2 + f_2(a^* a)^2 g_2(bb^*)^2)$ .

While the approach by Pisier and Shlyakhtenko relied on free probability theory, our proof uses more classical operator algebra methods, namely Tomita Takesaki theory and special properties of the Powers factors of Type  $III_\lambda$ ,  $0 < \lambda < 1$ . This is a joint work with Magdalena Musat.