Prof. Burglind Juhl-Jöricke
On envelopes of holomorphy

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Basic questions concerning them are open, although the notion is classical like that of a Stein manifold. Recently adjunction inequalities coming from Seiberg-Witten theory were applied to study envelopes of holomorphy of real surfaces in complex surfaces. The question of understanding the topology of the envelope of holomorphy from knowing the topology of the original domain is still challenging to complex analysts and symplectic geometers in an almost classical situation: a Stein filling of a contact manifold.

I will introduce to the problems, review some known results and present a new construction of the envelope of holomorphy which so far allowed to answer a question which was open previously:

For any of its points the envelope of holomorphy of a domain in a Stein surface contains an embedded Riemann surface passing through this point with boundary projecting to the original domain.

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