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*Workshop dedicated to the memory of Professor Gabriela Kohr*  
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**Geometric Function Theory in Several Complex Variables and Complex Banach Spaces**

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## **Logarithmic Sobolev inequalities on Euclidean submanifolds: sharpness, rigidity and applications**

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### **Abstract**

We provide Michael–Simon-type  $L^p$ -logarithmic-Sobolev inequalities on complete, not necessarily compact  $n$ -dimensional submanifolds  $\Sigma$  of the Euclidean space  $\mathbb{R}^{n+m}$ . Our estimate is sharp, and it involves the mean curvature of  $\Sigma$ . Equality can only occur if and only if  $\Sigma$  is isometric to the Euclidean space  $\mathbb{R}^n$  and the extremizer is a Gaussian. Applications are provided to sharp hypercontractivity estimates of Hopf–Lax semigroups on submanifolds. This is a joint work with Alexandru Kristály.