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A-normalized univalent subordination chains and Loewner PDE in infinite dimensions

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Abstract

In this talk, we obtain the biholomorphicity of the univalent Schwarz mappings $v(z,s,t)$ with normalization $Dv(0,s,t) = e^{-(t-s)A}$ for $t \geq s \geq 0$, where $m(A) > 0$, which satisfy the semigroup property on the unit ball of a complex Banach space X. We further obtain the biholomorphicity of A-normalized univalent subordination chains under some normality condition on the unit ball of a reflexive complex Banach space X. We give the existence of the biholomorphic solutions $f(z,t)$ of the Loewner PDE with normalization $Df(0,t) = e^{tA}$ on the unit ball of a separable reflexive complex Banach space X. The results obtained in this talk give some positive answers to the open problems and conjectures given by Graham, Hamada, Kohr and Kohr in 2013. This is a joint work with Ian Graham, Gabriela Kohr and Mirela Kohr.