

Topologies induced by distances originally named after Wasserstein in the field of optimal transport (Monge problem), have become since a quasi-unavoidable tool in many domains of analysis and classical mathematical physics, including large number systems of classical particles. Quantum and semi-quantum variants have been introduced lately and fruitfully applied in various fields including quantum mean-field theory, quantum optimal transport, control theory for the Schrödinger equation, semiclassical approximation with low (Cauchy-Lipschitz) regularity and a definition of quantum Legendre transform. We will show how semi-quantum Wasserstein, an object measuring the "distance" between classical densities and quantum operators provides a purely geometrical definition of Toeplitz-positive-(anti) Wick quantization (an alternative to pseudodifferential calculus preserving positivity): a Toeplitz operator is nothing else than the operator at zero distance from its symbol. We will discuss how this geodesic view of quantization might open a way toward the unsolved problem of defining quantum mechanics independently of systems of coordinates.

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