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## **Beyond classical machine learning: new insights on quantum machine learning**

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### **Abstract**

Quantum machine learning (QML) is a rapidly evolving field, driven by its prospects to bring quantum enhancements in many practical applications. Yet, several open questions are in the way of achieving this goal: Do there exist learning tasks, even artificially constructed, where QML can achieve a provable quantum advantage? If so, can we still retain this quantum advantage in quantumly trained but classically evaluated QML models? Among proposed models in the literature, are there preferred models we should use in QML? In this talk, I will present some of the recent insights we have gathered in an attempt to answer these questions.