



*WIRELESS  
QUANTUM NETWORKS:  
Intelligent Continuous Variable Technology*

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*As a part of the solution to the constant demand for higher data rates, wireless communications are moving towards higher and higher frequencies including mmWave and THz bands. At the same time quantum physics is experimenting with quantum state transmission over sub-optical, THz and even much lower bands. In the anticipation of the development of quantum computer networks and quantum key distribution QKD over wireless networks, there is a need for design tools that will enable optimization of the heterogeneous networks that will seamlessly merge these two technologies as much as possible.*

*At the same time, these networks will rely more and more on artificial intelligence so that further research is needed to integrate classical and quantum machine learning algorithms.*

*In general quantum technology can use either discrete (dv) or continuous (cv) variable information processing, where variables are modeled in the space of finite or infinite dimensions respectively. While the former option, used in our recent book, is used for systematic introduction to the field of quantum computing the latter is more feasible for practical implementation and for this reason is in the focus of this book.*

*Here, we make an effort to provide a summary of an impressive work done so far by the quantum physics, computer science and artificial intelligence researchers and elaborate why and how it should serve as a basis for coming up with the solutions for integrated heterogeneous networks as defined above. We believe that 7G wireless networks will be based on this concept although the step-by-step application of this technology is already being proposed for 5G and will be seen in 6G as well.*

*When it comes to using the book for undergraduate and postgraduate courses we incorporate a number of DESIGN EXAMPLES to replace the classical concept of using “problems and solutions” addendums at the end of the chapters/book. This enables using more sophisticated assignments for the teamwork of the students. Our students have shown great enthusiasm for such approach.*

*In addition to universities the professionals in research, industry and regulatory institutions should benefit from the comprehensive coverage of the book.*