



Biography of Dr. Alexander Rukhlenko, SAW/BAW Consultant

1. Early Career and Education

Dr. Alexander Rukhlenko is a recognized SAW/BAW expert with extensive experience in RF filter design, modeling and simulation, and computer-aided design (CAD) of acoustic wave devices. He received degree in Radiophysics and Electronics (with distinction) from the Belarusian State University (BSU), Minsk, in 1978. He also received the Ph. D. degree in acoustoelectronics from the Minsk Radio Engineering Institute in 1989.

From 1980 to 1993, he was with the Laboratory of Acousto- and Optoelectronics at the Minsk Radio Engineering Institute. His duties included research and development of the Surface Acoustic Wave (SAW) devices. Later, in 1993, he joined Semiconductor Physics Department in the BSU, where he worked as Principal Researcher and headed the SAW devices group until 2001.

2. International Experience in SAW/BAW Design

The year 1995 marked a turning point in his international career, when he won the SAW filter design competition organized and sponsored in the former USSR by the American company SAWTEK Inc. The company was one of the global leaders in SAW filter development and production, at the time.

He served at SAWTEK as an independent SAW consultant in 1995-1996 including one year stay in the USA. During this period, his major duties at SAWTEK were to improve SAW filter design models and algorithms.

In 1997-1998, he worked as a visiting SAW researcher and principal designer for LG Company (South Korea), where he designed IF SAW filters for mobile

and wireless communications (CDMA, PCS, GSM, WLL, WLAN, etc.).

3. Industrial Experience and Key Contributions

He worked as Principal Engineer at the Swiss company TEMEX SAW (Neuchatel, Switzerland) in 2001-2002, where he was responsible for design of bidirectional and low-loss SPUdT IF SAW filters.

In 2003-2005 he cooperated with the SAW company SAWNICS (South Korea), where he made significant contributions into SAW design software for bidirectional and low-loss IF SAW filters.

Since 2006, he worked at the German subdivision of the US semiconductor company [AVAGO/Broadcom](#). The company is a global leader in the field of the thin-film Bulk Acoustic Wave (FBAR) devices. He served at Broadcom as Senior Staff Engineer until his retirement in 2023. His prior duty was to provide link between modeling and characterization team and design group. One of his major achievements was integration of FBAR [MATLAB®](#) (Mathworks) models into the electronic circuit simulator [Keysight® PathWave Advanced Design System \(ADS\)](#).

He has developed and programmed a unique generic interface between MATLAB models and C/C++ user-compiled models (UCM). This allowed him to apply in ADS sophisticated MATLAB FBAR models for filter design.

Dr. A. Rukhlenko is one of the top experts in the field of SAW/BAW computer-aided design. He contributed in the computer-aided design of SAW devices. Moreover, he implemented his models and software in practical design of SAW products for high-volume production at industrial SAW companies. In addition, he lectured and demonstrated his state-of-the-art SAW design software at EPCOS AG (Germany), Thomson Microsonics (France), Temex SAW (Switzerland), SAWTEK, Inc (USA), Vectron International (USA, UK), Andersen Laboratories (USA), Toko America (USA), and others. His professional recognition is reflected in following [testimonials of the leading SAW/BAW experts](#).

4. SAW/BAW Modeling and Programming

He is one of the top MATLAB specialists, effectively exploiting effectively MATLAB computational power and flexibility in SAW/BAW design, modeling and simulation. He has unique experience to interface MATLAB software and applications in C/C++ or FORTRAN.

In addition, he is an author of the proprietary MATLAB SAW Filter Analysis Toolbox (SAWFAT) for designing bidirectional SAW IF filters. In the past, his software had been acquired by industrial SAW companies and universities.

5. Current Interests and SAW/BAW Consulting

As SAW/BAW expert, Dr. Alexander Rukhlenko has extensive experience in modeling and CAD tools development. His current research interests comprise software development for designing SAW/BAW devices, modeling and simulation of bidirectional or low-loss IF SAW filters, RF SAW filters including one- and two-port SAW resonators, Double Mode SAW (DMS) filters, ladder-type filters, FBAR filters, etc.

Since his retirement in 2023, he has been based in Munich, Germany, working as an independent SAW/BAW consultant. He provides a wide range of consulting services in SAW/BAW research, design of SAW/BAW devices and filters, development of advanced CAD tools, as well as education, training, lecturing, and technical writing in the field.

Web version: [Biography of Dr. Alexander Rukhlenko](#)