

MARK PIRCARO

Yuma, AZ
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PREFACE

My lifelong passion is designing high-performance loudspeakers!

I'm an innovator at heart with 23 worldwide patent records and have consistently come up with extraordinary solutions to challenges deemed essentially insurmountable by other engineers. The most important assets I have to offer are my sharp intellect, broad and diverse technical skills, eagerness to learn, and determination to do whatever it takes to get the job done with excellence. I have a long track record as a close collaborator and sought-after team player, bringing energy and camaraderie to group enterprises.

Bose Corporation, my employer for the past 23 years in my role as senior loudspeaker transducer engineer, is undergoing a profound transformation from large-format to wearable audio products. This plan involved relocating me back to corporate headquarters in Massachusetts, but with reluctance and regret, I judged this to be too disruptive for our family after having thrived in working remotely for them for 21 of those 23 years in Arizona.

I have an extensive background in EE, ME, acoustics, and physics, and a keen interest in many engineering as well as technical fields. I'm comfortable drawing deep insights across multiple technical domains to achieve innovative solutions. I am also every bit as much a nuts-and-bolts person as I am a theorist. I have ground and figured optical mirrors, built telescopes, designed and fabricated race-car engines, suspensions, and chassis. I've invented, designed, and built all manner of manufacturing test and assembly devices.

I'd like to express my appreciation and gratitude for your consideration and look forward to hearing from you! Thank you.

Sincerely,
Mark Pircaro

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SENIOR TRANSDUCER ENGINEER

Experienced Transducer Engineer with an extensive, consistent record of engineering innovations and accomplishments in the field of loudspeaker transducer and system design. Strong self-starter as well as effective team collaborator/energizer. Equally at home in the realms of electrical engineering, mechanical engineering, acoustics, and physics. Broad skillsets in the realms of:

- Electromagnetic modeling
- Acoustical modeling
- Loudspeaker non-linearities: modeling, remedies, and psychoacoustic impacts.
- Mechanical modeling.
- Electrical circuit modeling.

PROFESSIONAL EXPERIENCE

Bose Corporation, Framingham, MA **1995 - 2018**
Since January 1997, singularly operated R&D facility for Bose remotely in Yuma, AZ, in daily collaboration with corporate headquarters in Framingham, MA.

Acoustics Engineer Level V 2004 to 2018
Acoustics Engineer Level IV 1995 to 2004

Served as engineering design anchor for many and varied loudspeaker transducer development projects with emphasis on cutting-edge innovation, in systems mass-marketed around the world.

- Drove the design of numerous loudspeaker platforms and application-specific instances from initial conceptualization to implementation in manufacturing, spanning the gamut from home audio, to car audio, to portable/wearable audio.
- Excelled in consistently pushing the limits of loudspeaker acoustic output in relation to transducer size, minimizing acoustic distortion, and minimizing cost, often beyond anything previously seen within the industry.
- Repeatedly innovated “out-of-the-box” solutions that broke new ground for the company.
- Developed deep engineering competence across all disciplines pertaining to transducer design, normally requiring the expertise of an entire team of engineers.
- Analyzed abstract and complex problems and predicted outcomes mentally often without the aid of any software modelling, a skill recognized as unique within the Bose design community.
- Authored many internal technical treatises, extending from a few pages to over a hundred pages in length, commonly considered as “go-to” references for other Bose engineers.
- Created designs that consistently attained very high manufacturing yield rates and very low field return rates.
- Invented home audio transducer designs that have been produced in the hundreds of millions of units over the years. Some were the principal transducer used in systems that set world sales records, such as the Bose Acoustimass 5 ® and Bose Acoustimass 10 ®.

- Innovated car audio designs that have been utilized in millions of vehicles of GM, Nissan, Mercedes Benz, and other vehicular OEMs.
- Created portable/wearable audio transducers that have been produced in the millions of units to date, with numbers still climbing sharply.

PRIOR AND CONCURRENT EXPERIENCE

- **Zumtobel-Staff Lighting**, Highland, NY: Designed and fabricated a broad variety of manufacturing jigs and test instrumentation.
- **Independent consultant**, Highland, NY: Consulted in the design of loudspeaker systems for Rockustics ® and Gemsound ®, for products marketed worldwide by Radio Shack ® and other vendors.
- **New York Institute of Technology**, Old Westbury, NY: Taught undergraduate physics lab and freshman physics at New York Institute of Technology.
- **State University of New York** at New Paltz, NY: Physics graduate TA. Taught undergraduate physics lab at State University of New York at New Paltz.
- **Car design/building avocation**: Engaged in various car modification projects with great enthusiasm and success. Very knowledgeable in areas of suspension/chassis/NVH/handling/ICE design and execution. Some knowledge of active suspensions.

COLLEGIATE EDUCATION

Master of Arts in Physics

State University of New York at New Paltz, NY. 4.0/4.0.

Bachelor of Science in Electrical Engineering

Bachelor of Science in Physics

New York Institute of Technology at Old Westbury, NY. 4.0/4.0.

First-year general studies

MIT, Cambridge, MA.

OTHER TRAINING AND EDUCATION

MIT "Acoustics" course by Dr. Bose, Framingham, MA.

Design for Lean Six-Sigma, Air Academy Associates, Framingham, MA.

8D problem solving (web-based.)

Dr. Klippel loudspeaker seminars 2004-2007, Yuma, AZ

PATENTS
23 worldwide records

US 7397927 Loudspeaker suspension, 2004, Granted.
US 10194245 Transducer diaphragm dampening, 2019, Granted.
US 10097926 Voice coil configuration, 2018, Granted.
EP, DE, FR, GB EP15162779.1 Loudspeaker with compliantly-coupled low/high frequency sections, 2015, Granted.
US 14339071 Transducer irregular diaphragm ribs, 2014, Granted.
US 12469777 Loudspeaker suspension, 2009, Granted.

AWARDS

Winner of numerous Bose awards for manufacturing, innovation, and project teamwork.
Who's Who in American Science and Engineering 2000.

LANGUAGES

Fluent English, intermediate Spanish.