



Exponent[®]
Engineering & Scientific Consulting

Andrew Smith, Ph.D., P.E.

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Professional Profile

Dr. Smith is a mechanical engineer with extensive experience in investigating the performance of industrial machinery and consumer products within the context of both accident investigations and intellectual property disputes. Leveraging his experience in investigating workplace accidents (including industrial lathes, lifts, mixers, molding equipment, baggers, and conveyors), he regularly assists clients by synthesizing complex sources of information, physical evidence, and regulatory requirements yielding valuable insights into both accident causation and prevention.

Dr. Smith also assists clients in investigating technical issues related to many types of intellectual property disputes. Drawing on his background in both experimental physics and mechanical engineering, he has provided analysis related to both patent infringement and validity for a wide variety of technology including industrial vehicles, exercise equipment, textile production machinery, aerospace fasteners, and remote sensing technology. These analyses have been used in district court, PTAB filings, and trade secret litigation.

Prior to joining Exponent, Dr. Smith's research in experimental astrophysics was focused on the development and application of radiation detector technology. This work included modeling and developing sensor packages, as well as signal processing and communication electronics. Additionally, due to his role in the commissioning and construction of astronomical observatories, Dr. Smith has a background in the mechanical dynamics of large, movable structures as well as coating/degradation processes in mirror surfaces.

Dr. Smith has held research and teaching faculty appointments at NASA's Goddard Space Flight Center, the University of Maryland and Northwestern University. Dr. Smith has been invited to present lectures on a wide variety of topics in physics at conferences and workshops in the United States, Europe, and Asia. He has served as both a primary and contributing author on over 50 peer reviewed articles in the physical sciences.

Academic Credentials & Professional Honors

Ph.D., Physics and Astronomy, University of Leeds, UK, 2008

M.Sc., Particle Physics, Durham University, England, 2002

B.A., Astrophysics, University of California, Berkeley, 2001

Pre-doctoral Research Fellowship, Harvard-Smithsonian Center for Astrophysics, 2005-2008

Licenses and Certifications

Professional Engineer Mechanical, California, #39547

Professional Engineer Mechanical, Texas, #155233

OSHA 30 Hour Outreach Training Program - General Industry

Prior Experience

Associate Research Professor, Particle Astrophysics, NASA Goddard Space Flight Center/University of Maryland, 2014-2017

Associate Research Professor, Physics and Astronomy, University of Utah, 2011-2014

Visiting Lecturer, Physics, Northwestern University, 2009-2011

Postdoctoral Researcher, Argonne National Laboratory, 2008-2011

Project Experience

Selected Intellectual Property Investigations

Remote controlled wildlife trapping patent in view of prior art; developed opinions regarding infringement, obviousness, written description and enablement, and patentability. Testified at deposition.

Cotton baling and wrapping patent; developed opinions relating to invalidity in support of district court litigation.

Portable fuel storage and dispensing apparatus patent and related prior art; developed opinions relating to both infringement and invalidity in support of district court litigation.

Portable canopy tent patent and related prior art; developed opinions relating to invalidity in support of an IPR petition (instituted).

Automotive door hinge patent and related prior art; developed opinions regarding claim construction, anticipation, and obviousness in support of district court litigation.

Oil and gas drilling technology patents and related prior art; developed opinions regarding anticipation and obviousness in support of several IPR petitions.

Filter for mechanical sifter patent and related prior art; developed opinions regarding invalidity in support of district court matter.

Storage shelf technology patent and related prior art; developed opinions regarding invalidity in support of district court litigation.

Fire truck patent and related prior art vehicles; developed opinions regarding infringement, anticipation, and written description and enablement.

Pneumatic pumps for air mattresses patents and related prior art; developed opinions regarding invalidity in support of an IPR petition.

Exercise treadmill patent and related prior art; collected prior art, developed opinions regarding invalidity

and infringement in support of district court litigation.

Selected Industrial Safety Investigations

Lock-out / Tag-out and/or Machine Safeguarding:

- Rotational Molders
- Brake press machinery
- Carousel Baggers
- Industrial Lathes
- Industrial Mixers
- Industrial Wood Chippers
- Drilling Equipment

Standard of Care:

- Natural gas pipeline connection failure
- Pressurized swivel joint detachment
- Dock lift operations
- Hazardous material camlock coupler detachment
- Worker fall from municipal water tower

Selected Consumer Product Investigations

Magnetic field properties of children's toy; provided trial testimony.

Multiple investigations of allegations of injuries sustained while using a pressure cooker.

Designed and implemented custom instrumentation and data readout to measure strain field on ceramic lip of pressure cooker during use.

Built custom automated test fixture to test children's mattresses under cyclic loads.

Performance of ultrasonic pest repeller.

Built custom test fixture to ascertain failure loads of carabiners designed for use in hammocks.

Built custom test fixture to ascertain failure loads of consumer seating.

Multiple investigations of injuries sustained while using casino chairs.

Investigated tipping loads of wooden furniture.

Investigated tipping loads of exercise equipment.