

CURRICULUM VITAE OF C. J. ABRAHAM  
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#### **CERTIFICATIONS AND LICENSES**

- P. E. - Licensed Professional (Safety Engineer, CA)
- P.E. - Licensed Professional Engineer (State of Mississippi)
- DFE, Senior Member, Board Certified Diplomat in Forensic Engineering, The National Academy of Forensic Engineers, (Senior Member)
- National Academy of Forensic Engineers-Senior Member
- National Society of Professional Engineers-Member
- New York State Society of Professional Engineers-Member
- Queens Chapter, Society of Professional Engineers-Member
- CPC, CChE - Certified Professional Chemist & Chem. Engineer (National Inst. of Chemists & Chemical Engineers)
- FRSC, CChem - Chartered Chemist and Fellow (Royal Institute of Chemistry, London, England)
- DEE, Board Certified Environmental Engineer (American Academy of Environmental Engineers and Scientists)-Life Member
- IH, Board Certified Industrial Hygienist (American Academy of Environmental Engineers)
- FTI, Ctext-Fellow, The Textile Institute (Manchester, England)
- BCEE - Board Certified Environmental Engineer
- BCFE - Board Certified Forensic Examiner
- Certified - Arson Detection by the Federal Bureau of Alcohol, Tobacco and Firearms (U.S. Dept. of the Treasury) Certification in Fires and Arson Accelerant Detection by the Bureau of Alcohol/Tobacco/Firearms, Sponsored by the Northeastern Association of Forensic Scientists and the Suffolk County Crime Laboratory, October 14-18,1991.
- Certified - Chemical Engineer, Senior Member: #0118-003-3, The American Institute of Chemical Engineers
- Certified - Warnings & Instructions Specialist (University of Wisconsin-Madison, College of Engineering-1988)
- Certified in Motorcycle & Motor Scooter Safety and Operation
- Licensed Fire Safety Examiner - Arson Investigation and Prevention Unit, Virgin Islands Fire Service, Department of Licensing and Consumer Affairs
- Fellow - American College of Forensic Examiners
- Permanent Certification, University of the State of New York - Chem., Physics, Math, Gen. Science
- Board Certified Forensic Examiner in Chemistry and Chemical Engineering (American Board of Forensic Examiners)
- Board Certified Forensic Examiner in Safety Engineering and Design (American Board of Forensic Examiners)
- Board Certified Forensic Examiner in Fires and Explosions (American Board of Forensic Examiners)

- Board Certified Forensic Examiner in Industrial Hygiene (American Board of Forensic Examiners)
- Board Certified Forensic Examiner in Sports Safety (American Board of Forensic Examiners)
- Fellow of the Board—American Board of Forensic Examiners
- Diplomat in Forensic Engineering—American Board of Forensic Engineering and Technology (Lifetime)
- Professional Member - American Society of Safety Engineers
- Senior Grade-Systems Safety Society
- Certified-Safety and Field Management Consultant, US Virgin Islands; License No: 1-31246-1L, Business No: 31246
- Certification-Measurement in Residual Strains in Transparent and Translucent Materials, Strainoptic Technologies, Inc.: April 23, 1987
- Certification - University of Wisconsin-Madison, College of Engineering: Product Safety and Liability: The Role of Warnings: March 22-23, 1988 (Graduate Credit/Certification).
- Certified in power plant operations and boilers of all sizes.

#### **AREAS OF EXPERTISE (Technical)**

- Experience in new product development, manufacturing, packaging, standards, warnings and instructions.
- Extensive experience in the identification, elimination and control of hazards to people and property. This includes the development, establishment, manufacturing, construction, assembly, testing, operation, training and procedures including manuals, environmental engineering and industrial hygiene, warnings & instructions for consumer products.
- Authority in the fields of products liability, OSHA, Labor Law (Industrial Code), ADA, safety and safety engineering, and construction accidents.
- Contributing author to the PRODUCT DEFECT HANDBOOK.
- Lectured and taught at universities in the United States and Europe.
- Published and presented papers in the areas of fires, explosions (gas, bottle, battery), plastics, toxic torts, flammable fabrics, safety engineering and design, sports safety, household and industrial product safety, industrial equipment, warnings and instructions for both industrial and consumer products.
- Certified by The Steel Erectors Association of America in Connector Safety (OSHA Subpart R 1926.761(c)(2)); Fall Hazards Safety (OSHA Subpart R 1926.761(b)); Safe Erection of Open Web Steel Joist and Joist Girders and Handling Structural Steel.
- Patentee of many products, including protective headgear (face mask used in football - licensed to Riddell), enhancement of energy absorption for protective headgear and equipment (changed the safety requirements for facemasks in football), safety shields for batteries, insulation materials used on missiles, household products, non-toxic insect repellents and the ForceField headgear/headband. Copyright Registrations in the areas of battery warnings and instructions, toxic materials, household products and insect repellents.
- Experienced in golf cart accidents, operation and design.
- Experienced in amusement park activities and water park activities, operation, and safety.
- Experienced in head injury, brain injury and head trauma cases.
- Experienced in helmet testing and evaluation, head protection and analysis in all types of cases.
- Experienced in animal and human health products, new product development, EPA, product data specifications, testing and analysis.
- Experienced in architectural analysis (residential and commercial) including concrete slab composite structures for sidewalks, parking and streets including asphalt.

- Consultant to NIOSH (peer review research proposals for research and new OSHA safety standards and proposals for research in a variety of areas involving OSHA standards and proposed standards)
- Consulted to ABC and CBS News, Eye Witness News and the Discovery Channel.
- Consulted to the Department of Agriculture (Bureau of Mines). Under contract to evaluate lighting in the mines and above ground and evaluate why and how accidents involving trucks and vehicles can be minimized and/or eliminated.
- Consulted to the National Highway Traffic Safety Administration (NHTSA).
- Consulted to the Department of Labor (OSHA). Consultation in a variety of areas including, but not limited to: safety; safety engineering and design; warnings and instructions; industrial hygiene; toxic exposures; evaluation of visibility and lighting on construction sites, working environments, outdoor environments and warehouses; a variety of construction accidents; a variety of construction accidents involving employees; and safety training of construction workers and employees working in industry, research facilities and a variety of industries involving hazards and risks.
- Consulted to construction companies in the area of safety for their employees applying OSHA and ANSI standards for high elevations;
- Consulted to a number of State Attorney General's offices-NY, LA, CA, & UT.
- Consultant on Warnings & Instructions to the Unified Abrasives Manufacturer's Association.
- Consultant to Microsoft-Kinesiology Studies, Human Movements and Muscle Activity Impacts, Warnings and Instructions
- Consulted to the American Textile Company (warnings & instructions).
- Consulted to Sherwin Williams
- Consulted to the Long Island railroad
- Consulted to the New York Transit
- Consulted to the Queensborough Bridge authority
- Consulted to Wave Loch, Inc. (manufacturer of the Flow Rider)
- Consulted to Intamin AG, Switzerland, manufacturer of roller coasters. Safety, safety engineering and design, warnings and instructions and reconstruction of accidents.
- Consultant to the estates of the deceased and the foreigners that escaped in the Kaprun fire disaster case in Kaprun, Austria. Inspection of subject site and determination of why and how fires started, safety, safety engineering and design, warnings and instructions.
- Consulted to The Guidance Group (creator of educational toys)
- Consulted to Northern Lights (manufacturer of fitness equipment – safety engineering & design)
- Member (former) of the Advisory Board -World Congress on Industrial, Technical, and High-Performance Textiles (Great Britain)
- Member (former) of the Advisory Board-American Board of Engineering and Technology (USA)
- Architectural Review Board, Village of Great Neck, Great Neck, NY (1995-2009)
- Lectured and/or taught at universities in the United States and Europe
- Consultant - Risk and human factors consultant to Hudson Bay stores, Canada
- Consultant - Risk and human factors consultant to The Home Depot, Inc.
- Consulted to a number of chain stores in the area of safety in retail stores
- Consultant - Warnings & Instructions to the Unified Abrasives Manufacturers Association
- Consultant in Warnings & Instructions to Estwing Manufacturing Co. (manufacturer of tools)
- Consultant to Win Win Printing, Inc. – OSHA compliance and employee training
- United States Member of ISO/TC 181/SC- Safety/Manufacture of Toys. Safety testing, technical regulations, quality control, packaging, testing, packaging, warnings and instructions
- Consulted to Lobster, Inc. on safety and warnings (High speed tennis machine)
- Consulted to various municipalities on park, recreation safety and swimming pools

- Consultant to Hamaco Industries Corporation. A Japanese manufacturer of material handling equipment such as mechanical and electric lift tables. Preparation of warnings and instructions for lifts and creations of warnings and instructions for service and user manuals.
  - Tested and evaluated every type of protective sports head gear.
  - Member of the ASTM, (1964-present)
  - Over 30 years of experience with EU Directives, ISO, ASTM, ANSI, NEMA, NFPA, UL, OSHA for a large variety of products, including but not limited to recreational facilities, toys, playgrounds, personal household products, textiles, etc.
  - Lectured and taught at various universities in the United States and Europe.
  - Consulted to various municipalities on park, recreation safety and swimming pools
  - Diplomate-American Board of Forensic Examiners in Safety & Safety Engineering.
  - Member (former) of the Advisory Board -World Congress on Industrial, Technical, and High-Performance Textiles (Great Britain); former member of the Advisory Board - American Board of Engineering and Technology (USA).
  - Over 100 publications and presentations.
  - Consulted to Big Lots Stores, Inc. on display safety.
  - Consulted to Family Dollar Stores (safety of products);
  - Consulted to Walter Kidde (fire extinguishers);
  - Consulted to Kohl's Department Stores (retail displays and safety);
  - Consulted to Bed Bath & Beyond, Inc. (retail displays and safety)
  - Consulted to The Thompson's Company-Water Seal Product;
  - Consulted to The London Hotel, NYC, ADA (American Disability Act) evaluation;
  - Consulted to Reliable Bakery (Brooklyn) - Safety & OSHA;
  - Consulted to Attorney General's Office for the State of New York, Louisiana, Iowa and others.
  - Consulted to US Department of Justice, Eastern District of New York.
  - Consulted to CBS Evening News, Tampa Florida on July 23, 2013 relating to the safety and cause of the accident resulting in the death of a rider on the rollercoaster at Six Flags.
  - Consultation to ABC News, New York on 8-15- 2013. Serpent Roller Coaster ride accident involving 5-year-old in Coney Island on 8-14-2013
  - Consulted to CBS TV News, New York on 10-15-2013. Analysis of the safety protocol related to retail stores and stacking shelves with merchandise. (televised 10-31-13, 11 p.m.)
  - Consulted to Tylo Helo (Tylö AB), the largest sauna (dry and steam) company in the world.
  - Consulted to Transpo Industries, Inc.
  - Consulted to Landscape Forms, Inc.
  - Consulted to the Office of the United States Attorney
  - Consulted to Tuff Stuff Fitness Equipment, Inc.
  - Consulted to City of San Diego, CA (Playground safety)
  - Consulted to EBRU TV: Fresh Outlook, May 17, 2014, Soma, Turkey (Mine Explosion in Turkey)
  - Consulted to Blue World Pools
  - Consulted to the City of Fort Lauderdale, Florida School District on Sports Injuries
  - Consulted to the CalSpan (California Department of Transportation)
  - Consulted on the cause of iPhones catching on fire, leaking, and exploding.
  - Consulted to the New York City School Construction Authority
  - Consulted to the New York City Department of Education, City of New York, and the New York City Board of Education
  - Consulted to NuWave, LLC. Pressure Cooker
- PROFESSIONAL EXPERIENCE (Sports & Recreation)**
- President & Technical Director of ForceField LLC 2004-present (See forcefieldheadbands.com)
  - Former Director of Sports, Recreation & the Athletics, Division of Inter-City Testing & Consulting Corp. 1970-1998

- Experienced in the identification, elimination, and control of hazards in recreation facilities, parks and school environments.
- Directly involved with sports & recreation safety standards, safety and design analysis of protective equipment, consumer products, warnings and instructions.
- Over 40 years of experience in consulting on head trauma injuries, helmet integrity, and head protection cases for both children and adults.
- Consulted to municipalities on park & recreation facilities, and Set Makers, Inc., the manufacturer of recreation facilities for Burger King and McDonald's restaurants.
- Consulted on golf cart accidents, rock climbing cases, public and residential playgrounds, inflatables, projectile and flying toys, pool accidents, scooters, snow tubing, exercise equipment and battery and operated toys of all types
- Member of the Executive Committee and consultant in the area of engineering and human factors to the Hockey -Equipment Certification Council (HECC). Directly involved with the evaluation, warnings, testing and standards relating to head protection. (1980-1998)
- U.S. Delegate-International Standards Organization (ISO) (12 years)
- HECC liaison to USA Hockey
- Member and consultant to the Safety & Protective Equipment Committee (SPEC) of USA Hockey (12 years)
- Inventor of the Bio-Lite football facemask commercialized and licensed to Riddell
- Creator of warnings and instructions for many sports products.
- Creator of the protective Forcefield headband for soccer and many other sports ([www.forcefieldheadbands.com](http://www.forcefieldheadbands.com))
- USPTA - certified tennis instructor (United States Professional Tennis Association)
- Diplomat - American Board of Forensic Examiners (Sports & Recreation Safety)
- VP & Technical Director-ForceField LLC
- Associate Director - Recreation, Sports & Athletics Division ITC (1972-1998)
- Hockey Equipment Certification Council - Member of the Executive Board (Treasurer) and Consultant in the Engineering and Human Factors areas (1980-1998).
- Karate - Tae Kwon Do (2nd Kup) - Brown Belt.
- Consulted to Lobster, Inc. on safety and warnings (High speed tennis machine)
- American Bowling Congress - Member
- United States Tennis Association - Life Member; Certified Professional Tennis Instructor
- F-8 Sports Equipment & Facilities (ASTM) - Committee Member
- USA Hockey - Safety & Protective Equipment Committee (consultant and member 1995-2007)
- Diplomat in Sports & Recreational Safety, Board of Forensic Examiners
- Consulted to City of San Diego, CA (Playground safety)
- Consulted to the City of Fort Lauderdale, Florida School District on Sports Injuries
- Consulted to the City of Boston and Brockton, Massachusetts for all of their recreation and park districts
- Consulted to the Salvation Army recreational facility (Wooden surfaced skating rinks)
- Consulted on trampoline park accidents throughout the United States involving trampoline and foam pit accidents.
- Over 45 years of experience in creating, reviewing and critiquing waivers, disclosures, disclaimers, warnings and instructions for a variety of products including, but not limited to: chemical formulations; sports, recreational activities; household, commercial and industrial products.

#### **PROFESSIONAL ASSOCIATIONS**

- Member of the Human Factors and Ergonomics Society
- National Society of Professional Engineers
- New York State Society of Professional Engineers
- Queens Chapter, Society of Professional Engineers

- The National Academy of Forensic Engineers
- American Academy of Environmental Engineers, Diplomate
- American Industrial Hygiene Association (Full Membership)
- Royal Society of Chemistry (London), Fellow
- The Textile Institute, Fellow (Manchester, England)
- National Fire Protection Association
- American Society of Civil Engineers
- Human Factors and Ergonomics Society
- American Society of Safety Engineers (Professional Member)
- Systems Safety Society - Senior Grade
- American Society of Safety Professionals (ASSP), Long Island Section
- Standards Engineering Society
- American National Standards Institute (ANSI)
- Society of Automotive Engineers
- American Chemical Society (over 50 years)
- The American Institute of Chemical Engineers (Senior Member)
- Society of Plastics Engineers
- American Association of Textile Chemists and Colorists (AATCC)
- Human Factors and Ergonomics Society
- American Society of Mechanical Engineers (9073529)
- International Code Council
- American Society for Testing and Materials: ASTM (1964- to present)
 

C-8 Refractories	F08-Main Committee
C-14 Glass & Glass Products	F08-10 Bicycles
C-01 Cement	F08-11 In-Line Skating
D-1 Paint, Varnish, Lacquer & Related Products	F08-12 Wrestling and Gymnastics
D-9 Electrical Insulating Materials	F08-13 Fencing Equipment
D-12 Soaps & Other Detergents	F08-15 Ice Hockey
D-13 Textiles	F08-16 Archery Products
D-13.52 Flammability	F08-17 Trampolines and Related
D-14 Adhesives	Equipment
D-19 Water	F08-18 Golf Clubs and Shafts
D-20 Plastics	F08-19 Bicycle Accessories
D-21 Polishes	F08-21 Climbing and Mountaineering
D-26 Halogenated Organic Solvents	F08-22 Camping Equipment
D-30 High Modulus Fibers and their Composites	F08-23 Tennis Courts and Running Tracks
E-5 Fire Tests of Materials and Construction	F08-24 Paintball and Equipment
E-7 Non-destructive Testing	F08-25 Residential Basketball Equipment
E-15 Analysis & Testing of Industrial Chemicals	F08-26 Baseball and Softball
E-17 Skid Resistance	F08-30 Fitness Products
E-20 Temperature Measurement, Chemicals	F08-51 Medical Aspects and Biomechanics
E-27 Hazard Potential of Chemicals	F08-52 Playing Surfaces and Facilities
E-30 Forensic Sciences	F08-52.1 Task Group Playground Surfacing
E-34 Occupational Health & Safety Aspects of Materials, Physical & Biological Agents	F08-53 Headgear and Helmets
E-28 Mechanical Testing	F08-54 Athletic Footwear
F-8 Sports Equipment & Facilities	F08-55 Body Padding
F-9 Tires	F08-56 Facilities-Baseball and Softball
F-13 Safety & Traction of Footwear	F08-57 Eye Safety for Sports
F-15 Consumer Product Safety	F08-61 Ice Hockey Rinks
F-23 Protective Clothing	F08-63 Playground Surfacing Systems
F-27 Snow Skiing	F08-64 Natural Playing Surfaces
F-08 on Sports Equipment and Facilities	

F08-65 Artificial Turf Systems  
F2374- Standard Practice for Design,  
Manufacture, Operation, and  
Maintenance of Inflatable Amusement  
Devices  
F24 on Amusement Rides and Devices  
F24-10 Test Methods  
F24-20 Specifications and Terminology  
F24-24 Design and Manufacture

F24-30 Maintenance and Inspection  
F24-40 Operations  
F24-60 Special Rides & Attractions  
F15- Consumer Products  
F15- Aquatic Play Equipment  
F15-29 Public Playground Equipment  
F15-36 Soft Contained Play Equipment  
F15-44 Play Equipment for Children Under  
Two

**EXPERIENCE IN THE AREAS OF FIRES AND  
EXPLOSIONS**

1. Certified - Arson Detection by the Federal Bureau of Alcohol, Tobacco and Firearms (U.S. Dept. of the Treasury) Certification in Fires and Arson Accelerant Detection by the Bureau of Alcohol/Tobacco/Firearms, Sponsored by the Northeastern Association of Forensic Scientists and the Suffolk County Crime Laboratory, October 14-18,1991.
2. Fire catastrophe on funicular train "Gletshcerbalin 2" in Kaprun, Austria
3. Coal barbeque starter
4. Cigarette lighters
5. Paint thinners
6. Flammable sprays
7. Hair sprays
8. Hair treatment
9. Flammable fabrics
10. Automobile fires
11. Gasoline fires and explosions
12. Dust explosions
13. Spontaneous combustion cases
14. Gas tank explosions
15. Propane tank- truck supply fires
16. Vapor explosions from varnishes, paints, floor finishers
17. Total release sprays
18. 55-gallon drums/cutting them in ½ explosions filled with explosive vapor
19. Exploding automobile tires with temporary iso-propane/butane propellant
20. Aerosols - flash back
21. Paints
22. Dept. of Agriculture Bureau of Mines
23. Spontaneous combustion
24. Exploding automobile batteries
25. Fireworks
26. Fireworks manufacturing facility
27. Gasoline containers
28. Propane tank explosions (pool heater and household use)
29. Chemical tanker explosions
30. Power plant explosions
31. Ship explosions
32. House explosion due to natural gas leaking from supply pipes from street to basement
33. Static electricity discharge- fires and explosions
34. High voltage discharge
35. Household product fires
36. Natural gas leaks- fires and explosions
37. Trailer home fires and explosions
38. Deflagration of plastic containers containing flammable liquids
39. Mobile phone and iPad lithium battery explosions
40. Campfires
41. Explosions on tankers
42. Fires in apartments
43. Fires in private residences
44. Fires in commercial buildings
45. Fires in restaurant kitchen

## QUALIFICATIONS AS A SAFETY SPECIALIST

- a. Certified Safety Engineer
- b. Licensed Professional Engineer with a specialty in Safety Engineering and Design (P.E.)
- c. Diplomat in the American Board of Forensic Examiners
- d. Fellow in the American College of Forensic Examiners
- e. Board Certified Forensic Examiner in Safety Engineering and Design
- f. Senior Grade and Diplomat in Forensic Engineering (DFE)
- g. Professional Member of the American Society of Safety Engineers
- h. Senior Grade Level in the Safety System Society
- i. Member of the ASTM from 1964 to the present time involved directly in the creation of safety standards for all types of pedestrian walkways, stairs, etc.
- j. Board Certified as an Environmental Engineer and a Board-Certified Industrial Hygienist
- k. Specialist in ADA requirements
- l. Certified in Warnings and Instructions
- m. Over 45-years of experience in building codes and construction
- n. US Delegate for thirteen years to the International Standards Organization creating international safety standards.
- o. Board Certified Forensic Examiner in Safety Engineering and Design (American Board of Forensic Examiners)
- p. Senior Classification-Systems Safety Society
- q. Certified-Safety and Field Management Consultant, US Virgin Islands; License No: 1-31246-1L, Business No: 31246
- r. Consulted to the Department of Labor (OSHA) in Safety.
- s. Consulted to NIOSH (National Institute for Occupational Safety and Health).
- t. Consultant to Microsoft-Kinesiology Studies, Human Movements and Muscle Activity Impacts, Warnings and Instructions
- u. Consulted to Transpo Industries, Inc.
- v. Consulted to Blue World Pools
- w. Diplomat-American Board of Forensic Examiners in Sports and Recreational Safety
- x. Over 45 years of experience in evaluating, testing and consulting on every type of walking surface with reference to safety and the coefficient of friction (slipperiness).
- y. Presented seminars to the graduating class of mechanical engineers at Columbia University School of Mechanical Engineering covering subjects relating to safety and design.
- z. Consulted to CBS News ABC News, and Eye Witness News, the Department of Agriculture, National Highway and Traffic Safety Administration and CalTrans (California Department of Transportation)
- aa. Formerly a member of the Architectural Board in the Village of Great Neck, Great Neck, New York for 12 years and was directly involved in the examination and approval process of the architectural design of both residential and commercial buildings, relating to local, state and national codes. Presently an alternate to the committee.



### Experience in Head & Brain Injuries

1. Extensive experience in the impact and dissipation of forces to the head and brain.
2. Experience extends over 49 years in sub-concussive and concussive brain injuries to children and adults in contact and collision sports.
3. Over 49 years of training and experience in sub-concussive and concussive brain injuries to children and adults involved in slip, trips and falls and other types of personal injuries.
4. Former experience as one of three delegates to the ISO (International Standards Organization) with 15 other countries that created safety standards for protective helmets in the sport of hockey worldwide.
5. Former guest speaker to a large number of national conventions involving head and brain injuries in sports.
6. Presented scientific papers at international and national technical meetings involving concussions and sub-concussive brain injuries.
7. Sole author of several peer reviewed articles on concussive brain injuries.
8. Inventor and provider of the leading protective headgear used in soccer, basketball, cheerleading, curling, Veteran's hospitals for the traumatically brain injured veterans, for seniors prone to falling in nursing homes, for seniors prone to falling, dwarfs and young children learning to walk, children in playgrounds, challenged and handicapped children, and many more applications.
9. Consults on one or more brain injury accidents per week over the last 10+ years.
10. Member of the ASTM (American Society for Testing and Materials) from 1964 to the present time creating safety standards for every type of contact and collision sport.
11. Observed a number of autopsies in which head and brain injuries were involved with the demise of the individual.
12. Directly involved with the creation of every safety standard relating to protective headgear used in both contact and collision sports and every type of recreational activity involving the use of headgear.

## **PATENTS**

- 1. High temperature carbonaceous and siliceous materials in aerospace fields assigned to corporations; dental and medical fields-assigned to corporations, industrial formulations for air and water pollution fields-assigned to corporations; polymers and novel adhesives-assigned to corporations; formulations for cleaning - industrial and consumer applications-assigned to corporations; glass and coating formulations-assigned to corporations.**
- 2. Head Gear in Sports – C. J. Abraham, U.S. Patent No. 4,342,122, August 3, 1982. (Licensed to Riddell - BIOLITE face masks, a new generation of protective equipment).**
- 3. Flexible Face Mask Improvement – C. J. Abraham, U.S. Patent No. 4,631,758, dated December 30, 1986.**
- 4. Storage Battery Having a Protective Shield – C. J. Abraham, U.S. Patent 4,699,855 granted June 1987; issued October 13, 1987**
- 5. Storage Battery Having a Protective Shield, C. J. Abraham, Canadian Patent, issued May 14, 1991, No. 1284174.**
- 6. Storage Battery Having a Protective Shield, C. J. Abraham, Japanese Patent Application No. 60888/1987**
- 7. Storage Battery Having a Protective Shield – Improvement, C. J. Abraham, U.S. Patent No. 4,770,958, September 13, 1988.**
- 8. Storage Battery Having a Protective Shield, C. J. Abraham, West German Patent Application No. P38 04 447.1.**
- 9. Protective Shield for Battery, C. J. Abraham, Great Britain Patent No. 2208032, dated May 31, 1988**
- 10. Protective Shield for Battery, C. J. Abraham, Italian Patent Application, No. 67503-A/88**
- 11. Protective Shield for Battery, C. J. Abraham, French Patent Application No. 88 10747**
- 12. Storage Battery Having a Storage Battery Having a Protective Shield - Deflectable Battery Shield, U.S. Patent No. 4,952,468, August 28, 1990**
- 13. Storage Battery Having a Protective Shield for Battery, C. J. Abraham, Spanish Patent No. 2,021,505, March 21, 1992**
- 14. Storage Battery Having a Protective Shield for Battery, C. J. Abraham, British Patent, issued September 7, 1989, No. 2,235,085**
- 15. Storage Battery Having a Protective Shield Italian Patent Application 68583-A/89.**
- 16. Storage Battery Having a Protective Shield, French Patent Application No. 89 17442/140644.**
- 17. Storage Battery Having a Protective Shield, West German Patent Application No. A228P102.**
- 18. Flame Retardants for Linseed Oil: Formulations and Applications - C. J. Abraham, et al. U.S. Patent. 5,540,762, issued July 30, 1996.**
- 19. Non-Slip Shoelaces, C.J. Abraham and Kimti Lal Gandhi, U.S. Patent 5,673,546, October 7, 1997**
- 20. Non-Toxic Animal Repellent: C. J. Abraham, U.S. Patent 5,554,377, September 10, 1999.**
- 21. Apparatus for Enhancing Absorption and Dissipation of Impact Forces for All Protective Headgear: C. J. Abraham, U.S. Patent 6,272,692, Aug. 14, 2001.**

22. Fog-Free Protective Glasses, Goggles, and Non-Protective Glasses: C. J. Abraham. U.S. Patent applied for in June 2001.
23. Enhanced Impact and Energy Absorbing Product for Footwear, Protective Equipment, Floors, Boards, Walls, And Other Surfaces, U. S. Patent applied for in November 2001.
24. Enhanced Impact and Energy Absorbing Product for Footwear, Protective Equipment, Floors, Boards, Walls, And Other Surfaces", U. S. Patent applied for in May 2002.
25. Animal Repellent, U.S. Patent 5,554,377, September 10, 1996.
26. Self-Locking Adjustable Bracelet, U.S. Patent 5,603,231, February 18, 1997.
27. Self-Locking Breakaway Band, U.S. Patent 5,657,645, July 19, 1997.
28. Solid and Liquid Compositions for Dispersion of Insect Repellent Based On DEET, U.S. Patent No.: 2,738,862, April 14, 1998.
29. Insect Repellent Candle and Method of Making Same, U.S. Patent No.: 5,854,284, December 29, 1998.
30. Apparatus for Enhancing Absorption and Dissipation of Impact Forces for All Helmets and Protective Equipment, filed February 21,2001,
31. Impact and Energy Absorbing Product for Helmets and Protective Gear (filed September 7, 2001 Appl. No. 09/949,237), C. J. Abraham, US Patent No.: 6,378,140, April 30, 2002.
32. Apparatus for Enhancing Absorption and Dissipation of Impact Forces for All Protective Headgear (filed January 4, 2001 Appl. No. 09/754/472), C. J. Abraham, US Patent No.: 6,272,692, August 14, 2001.
33. Apparatus for Enhancing Absorption and Dissipation of Impact Forces for All Helmets and Protective Equipment for All Helmets and Protective Equipment, (filed August 22, 2002 Appl. No. 10/225,866), C. J. Abraham, U.S. Patent No.: 6,282,724, September 4, 2001.
34. Impact and Energy Absorbing Product for Floors, Walks, And Other Flat Surfaces, C. J. Abraham, Filed October 12, 2001, U.S. Patent 6,598,365 July 29, 2003.
35. Apparatus for Enhancing Absorption and Dissipation of Impact Forces for Sweatbands Used in Connection with Helmets (filed June 10, 2003 Appl. No. 10/457,856), C. J. Abraham, U.S. Patent No.: 6,978,487, December 27, 2005.
36. Apparatus for Enhancing Absorption and Dissipation of Impact Forces for Sweatbands (filed August 22, 2002 Appl. No. 10/225,866), C. J. Abraham, U. S. Patent No.: 6,675,395, Jan.13, 2004.
37. Apparatus for Enhancing Absorption and Dissipation of Impact Forces for Sweatbands (filed November 17, 2005 Appl. No. 11/281,073, published March 30, 2006) C. J. Abraham, U.S. Patent No.: 7,234,174 issued June 26, 2007 (Continuation-in-Part claiming the benefit of the filing date of the August 22, 2002 non-provisional patent application No. 10/225,866).
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## PRESENTATIONS AND PUBLICATIONS

Peer reviewer of manuscripts for the American Society for Testing & Materials (ASTM) 1991-

Peer reviewer of manuscripts for the Journal of Forensic Examiners, 1994-

Peer reviewer of manuscripts for Inter Science Publishers: Int. J. of Entrepreneurial Venturing

Numerous papers written and/or presented during 1961-1965 under confidential and/or secret clearance in areas of ablation, insulation, material evaluation, fiber analysis in hyper-thermal environments.

1. **A Survey of Insulation Materials, by C. J. Abraham, R. L. Keller and A. A. Stenersen, Report No. 339, Aerojet Corporation, August, 1961.**
2. **Evaluation of specific DuPont Research Fiber Reinforcing Agents, C. J. Abraham and A. A. Stenersen, Report No.MF-525; Aerojet General Corporation, November, 1963.**
3. **The Treatment & Analysis of Power Plant Operations, by C. J. Abraham, Engineering Society of Power Plant Engineers, Suffolk County, 1967.**
4. **Chemical Defense of Drugs and Narcotics, by C. J. Abraham, Suffolk County Criminal Bar Assoc., 9/74.**
5. **Forensic Evaluation and Defense, by C. J. Abraham, Suffolk County Criminal Bar Assoc., 1975.**
6. **Used of Experts in Forensic Sciences, C. J. Abraham, Queens County Criminal Bar Assoc., Jan. 1976.**
7. **Adaptation of Testing Standards to Practical Requirements, C. J. Abraham & F.L. Ryder, Nat'l Symposium on Technical Standards in Products Liability Litigation, American Society for Testing & Materials, Toronto, Canada, May 5, 1977.**
8. **Hazards Relating to Hospital Procedures and Standards of Care, by C. J. Abraham & F.L. Ryder, ibid.**
9. **Safety Design in Plastic Sports Equipment, by C. J. Abraham & F.L. Ryder, Nat'l Technical Conference on Safety and Health with Plastics, Denver, CO., November 8, 1977.**
10. **Product Liability and Negligence Within the Hospital Environment, by C. J. Abraham, Nassau Bar Assoc. June, 1978.**
11. **The Law and Use of Videotaping Depositions, by C. J. Abraham, NY State Trial Lawyers Assoc., NYC, October 1978.**
12. **An Analysis of a Defective Product from the Manufacturer to the Consumer, by C. J. Abraham, NY State Trial Lawyers Assoc., ibid.**
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14. **The Importance of Discovery in Handling Cases Prior to the Deposition, by C. J. Abraham, John Jay College of Criminal Justice, NYC, March 27, 1979.**
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16. **Products Liability Aspects of Asbestos, presented to the Toxic Tort Section of the American Trial Lawyers Association, Hilton Head, SC, October 1981.**
17. **Flammable Fabrics - A Critique, presented to NY State Trial Lawyers Association., October 23, 1982.**
18. **Explosion Accidents, by C. J. Abraham, ibid.**
19. **Labeling Liability in the Toxic Tort Case, by C. J. Abraham, et al., 1983 Annual Convention, Assoc. of Trial Lawyers of America, July 15-22, 1983, Washington, DC; Trial Lawyers Quart.,**

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20. Foreseeable Fire Hazards in Mobile Home Construction, C. J. Abraham, et al., Proc. 5th California Conf. on Product Toxicity, Vol. 5, 1984, pp. 68-72; presented to the 9th Int'l Conf. on Fire Safety, San Francisco, CA, January 17, 1984.
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  24. Household Products - Drain Cleaners, C. J. Abraham, Product Defect Handbook, Lawyers Cooperative Publishing Company, Rochester, NY 1984.
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  35. Mannequin Simulation Studies in the Flammability Evaluation of Garments, C. J. Abraham, et al. 13th Int'l Conference on Fire Safety, January 11-15, 1988 (San Francisco, CA).
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  39. Methods of Controlling Lead-Acid Battery Explosions C.J. Abraham, International Conference on Fire Safety, 1988 San Francisco, CA

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43. Automobile Battery Explosions: A New Standard of Care, C. J. Abraham, et al., 46th Annual Belli Seminar, July 15, 1989, Boston, MA (The Melvin Belli Society).
44. Development of the International Standard for Aircraft Batteries, C. J. Abraham, et al., 1989 SAFE Symposium, New Orleans, LA, December 5-8, 1989.
45. A New Standard of Care for Wearing Apparel, Blankets and Sheets, C. J. Abraham, et al., 15th International Conference on Fire Safety, January 8-10, 1990, San Francisco, CA.
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63. Linseed Oil - A Hazardous but Necessary Ingredient? C. J. Abraham, et al, 1994 Annual BCC Conference, Stamford, Connecticut, May 24-26, 1994.
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65. Recommended Design Factors for The Ideal Sports Sneaker, C. J. Abraham, et al., Conference on Textiles in Sports and Sportswear, The University of Huddersfield, Queensgate, Huddersfield, Great Britain, April 10-11, 1995.
66. Tent Fabric - Design Defects and Recommended Solutions, C. J. Abraham, et al., Conference on Textiles in Sports and Sportswear, The University of Huddersfield, Queensgate, Huddersfield, Great Britain, April 10-11, 1995.
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72. A Viable Product vs. The Legal System, C. J. Abraham, Connecticut Bar Association, New Haven, Connecticut, May 15, 1997. (presentation)
73. Enhancing the Flame Retardancy of Natural and Natural-Polymer Fibers, C. J. Abraham, World Textile Congress on Natural and Natural Polymer Fibers, The University of Huddersfield, Huddersfield, England, July 9-11, 1997.
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86. Product Safety-Product Liability and Torts, C. J. Abraham, Glasgow School of Law, Glasgow, Scotland, March 16, 2004.
87. Reducing the Impact Force on Hockey Helmets, C. J. Abraham, Safety & Protective Committee, USA Hockey 2005 Annual Congress, Miami, FL, January 19, 2005.
88. Subdural Hematoma and the Sport of Hockey: A Case Study, C. J. Abraham, Safety & Protective Committee, USA Hockey 2006 Annual Congress, Miami, FL, January 20, 2006.
89. Risk Analysis in Product Design, Columbia University, School of Engineering, New York, March 31, 2009; C. J. Abraham
90. Risk Analysis of Horizontal Ladders Above Another Playground Activity, ASTM, Tampa, Florida, January 29, 2008.
91. The Design Criteria for a Safe Design of Products, Columbia University, Department of Mechanical Engineering, (Seniors & Masters Class), NYC, February 12, 2008.
92. Risk Analysis in Product Design, Columbia University, Department of Mechanical Engineering, New York, March 31, 2009; C. J. Abraham
93. Points of Law Associated with Mechanical Engineering and Designing Products, C. J. Abraham, Columbia University School of Mechanical Engineering, November 3, 2009
94. Your Body Is Nothing Without A Brain, C. J. Abraham, Forensic Examiner, Spring Issue, 2011, pp. 109-113.
95. Mechanical Engineering: The Product & The Law, C. J. Abraham, Columbia University School of Engineering, Department of Mechanical Engineering, March 24, 2011 (Seminar)
96. Concussions, Head Injuries and the Textile Industry, C. J. Abraham, The Textile Institute in Manchester, UK, November 30, 2011 (International Conference)
97. Concussions and Head Injuries in Soccer, C. J. Abraham. Testimony before the Senate and Congressional Representatives of the Commonwealth of Massachusetts, Committee on Education
98. Concussions and Head Injuries - interview on Mind Games Radio in St. Louis, Missouri on November 5, 2011.
99. Concussions, Head Injuries and The Textile Industry, C. J. Abraham, The Textile Institute, Managing Innovation in Textiles, Manchester, United Kingdom on November 30, 2011.

100. US Youth Soccer Workshop, February 16-18, 2012, at the Hynes Convention Center in Boston, Mass. Head Injuries and Concussions
101. Propellant Systems for Household Spray Products, C. J. Abraham, American Institute of Chemical Engineers, Houston Texas, April 2, 2012.
102. Sub-Concussive Head Impacts in Soccer and a Method for Significantly Reducing and Dissipating Those Forces, Abraham, C. J. and Abraham, S. R., presented at the ASTM International Symposium on the Mechanism of Concussion in Sports, November 13, 2012, Atlanta, Georgia.
103. Sub-Concussive and Concussive Head Impacts in Soccer and a Method for Significantly Absorbing, Reducing and Dissipating Those Forces, C. J. Abraham, Expo Soccer, Montreal, Canada, March 31, 2013.
104. Concussive and Sub-Concussive Brain Injuries in Soccer, C. J. Abraham, 2013 Soccer Expo, Lake Tahoe, Nevada, April 12, 2013
105. Facts, Myths and Misconceptions in Concussive and Sub-Concussive Brain Injuries, C. J. Abraham, Lake Tahoe, Nevada, April 13, 2013
106. Failure Analysis of a PVC Bottle Containing a Fire Starter Gel Designed for Wood and Wood Pellet Stoves, C. J. Abraham, Columbia University School of Engineering, Department of Mechanical Engineering, October 15, 2013 (Graduating Senior Seminar).
107. Structural Forensic Engineering: Using Forensic Engineering Information in Litigation, C. J. Abraham, HalfMoon Education, Nashville, TN January 22, 2014
108. Structural Forensic Engineering: Understanding the Forensic Engineering Process, C. J. Abraham, HalfMoon Education, Nashville, TN January 22, 2014
109. Determining the Liability of a Fire-Starting Product, C.J. Abraham, 2014 AIChE Spring Meeting, New Orleans, LA, April 1, 2014
110. Total Fog Release Chemical Products: The Hidden Dangers and Enhanced Risks, C.J. Abraham, AIHce (American Industrial Hygiene - Conference and Exposition) 2014, San Antonio, TX June 5, 2014
111. A Brief Outline of Tort Law and the Mechanical Engineer, C.J. Abraham, The City Univ. of New York, (CUNY), Department of Mechanical Engineering, New York, October 21, 2014
112. A Brief Outline of Tort Law and the Mechanical Engineer, C.J. Abraham, Columbia University, Department of Mechanical Engineering, New York, October 23, 2014
113. The Mechanical Engineer & Consumer Product Design Safety Requirements & The Law, C.J. Abraham, Columbia University, Department of Mechanical Engineering, two-hour seminar for all of the graduating seniors in mechanical engineering, New York, NY, November 5, 2015.
114. The Mechanical Engineer & Consumer Product Design Safety Requirements & The Law, C.J. Abraham, City College of New York (CUNY), Department of Mechanical Engineering, two-hour seminar for all of the graduating seniors in mechanical engineering, New York, NY, November 12, 2015.
115. University of the Pacific presentations to faculty and graduate students in (a) Chemistry & Chemical Engineering, (b) Coaching Sports & Recreational Activities (c) Challenged, handicapped activities and learning (e) Opportunities by applying various aspects of learning through experience, education and work ethic. (f) Entrepreneurial endeavors, C.J. Abraham, February 9 & 10, 2016.
116. Chemistry & Alternative Career Opportunities, C.J. Abraham, 44th ACS Middle Atlantic Regional Meeting the College of St. Vincent, Riverdale, New York, June 10, 2016 (2-hour presentation)
117. Brain Injuries in Recreational & Competitive Basketball, C. J. Abraham, 125th AAU National Convention in San Antonio, Texas, October 13, 2016

118. **The Mechanical Engineer & Product Design Safety, Risk Analysis & The Law, C.J. Abraham, Manhattan College School of Engineering, October 18, 2016**
119. **Product Designs, Risk Analysis & Standards, The Legal Responsibilities of Mechanical Engineers, C.J. Abraham, Columbia University, Department of Mechanical Engineering, November 10, 2016**
120. **The Law & Mechanical Engineering Responsibilities, C.J. Abraham, Manhattan College Department of Mechanical Engineering, January 24, 2017**
121. **The Law & Mechanical Engineering Responsibilities, C.J. Abraham, Columbia University Department of Mechanical Engineering, January 26, 2017**
122. **Engineering Designs & The Mechanical Engineer: Responsibilities of the Engineer in the Design of Products for Consumer and Industrial Applications, C.J. Abraham, Manhattan College Department of Mechanical Engineering, October 17, 2017**
123. **Industrial Accidents, Types and Causes Integrating Mechanical Engineering and The Law, C.J. Abraham, Columbia University, Department of Mechanical Engineering, October 19, 2017**
124. **Engineering Designs & The Mechanical Engineer: Responsibilities of the Engineer in the Design of Products for Consumer and Industrial Applications, Columbia University, Department of Mechanical Engineering, September 28, 2017**
125. **The Most Common Indoor Volleyball Injuries and the Non-delegable Responsibilities of Coaches, Schools and Leagues with Reference to the Safety and Welfare of Players, C. J. Abraham, 2017 American Volleyball Coaches Association, Kansas City, Kansas, December 16, 2017**
126. **Engineering Designs & The Mechanical Engineer (Part I): Responsibilities of the Engineer Involved in the Design of Products for Consumer and Industrial Applications, C. J. Abraham, Columbia University, Department of Mechanical October 11, 2018**
127. **Engineering Responsibilities & The Mechanical Engineer (Part II): Responsibilities of the Engineer Involved in the Design of Products for Consumer and Industrial Applications, C. J. Abraham, Columbia University, Department of Mechanical Engineering, October 23, 2018**
128. **The Kaprun Ski Train-A Disaster Waiting to Happen, C.J. Abraham, National Academy of Forensic Engineers (NAFE), Orlando Florida, January 5, 2019**
129. **Sub-concussive and Concussive Brain Injuries in Soccer, C.J. Abraham, Dublin Soccer League Coaches, Dublin California, July 22, 2019**
130. **Product Designs, The Mechanical Engineer & The Law, by C. J. Abraham, Columbia University, Department of Mechanical Engineering – October 15, 2019**
131. **Risk Analysis of Products, the Law and the Mechanical Engineer, by C. J. Abraham, Columbia University, Department of Mechanical Engineering – October 29, 2019**

## **Dr. C.J. Abraham**

PhD, JD, PE, DPE, CPC, FRSC, DEE, IH  
FTI, BCFE, DCEE, CChE, CChem

Dr. Abraham is a licensed P.E. and a Senior Member and a Diplomat in The National Academy of Forensic Engineers. Over the last 45 years, C. J. Abraham has created warnings and instructions for many products and protocols applied and used worldwide. He has consulted to major news channels, NHTSA, OSHA, NIOSH, State of California (CalTrans), Microsoft, New York Transit, Queensborough Bridge Authority, Department of Agriculture, the Federal Government, office of the United States Attorney, State Attorney General's Offices, and municipalities throughout the United States, Canada and Europe in a variety of technical areas.



Dr. Abraham is also the author of over 120 publications and presentations. His current interests are in the areas of head and brain protection in sports and recreation and personal injury accidents and litigations. In addition, he is also involved in the reconstruction of all types of sports injuries in a large variety of recreational and sports activities, amusement parks, sports facilities, as well as accidents involving a variety of products and vehicles. His background may be found at [www.scientificadvisory.com](http://www.scientificadvisory.com). He has also invented and commercialized many products.

In the past, Dr. Abraham was a United States representative to the International Standards Organization (ISO), a member of the Executive Board of the Hockey Equipment Certification Council (HECC), a member of the Safety and Protective Equipment of USA Hockey. He has also been an active member of the American Society of Testing and Materials (ASTM) from 1964 to the present time participating in the creation of safety standards for all types of recreational activities, sports and a variety of products. He is also a Diplomat in Sports and Recreation. As a result of Dr. Abraham's involvement in personal injury and litigation cases, many products, including recreational and sports activities, have been made safer.

**Hobbies: Tennis, Golf, Bowling, Horticulture, Bridge, and a very good cook**