CURRICULUM VITAE

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BASIC INFORMATION:

NAME: Mark W. Kroll, PhD, FACC, FHRS, FIEEE, FAIMBE

OFFICE: Box 23
Crystal Bay, MN 55323 USA

PHONE: +1-805-428-1838

E-MAIL: mark@kroll.name

CITIZENSHIP: United States

MARITAL STATUS: Married, 4 children

LANGUAGES: Spanish (Good)
German (Usable)
French (Reading Only)

ACADEMICS:

ACADEMIC DEGREES:

1975	B. Mathematics.
1983	M.S.
1987	Ph.D.
1990	M.B.A.

SCIENTIFIC RECOGNITIONS:

1996: American College of Cardiology: Fellow

2009: Heart Rhythm Society: Fellow

2009: Engineering in Medicine and Biology Society: Fellow

2013: American Institute for Medical and Biological Engineering: Fellow

EDUCATION:

1967-1970	Minnetonka High School Minnetonka, Minnesota
1969	Michigan State University (National Science Foundation High School Honors Summer Program) East Lansing, Michigan
1970-1975	University of Minnesota Minneapolis, Minnesota
1975-1979	University of Minnesota Graduate School Minneapolis, Minnesota
1988-1990	University of St. Thomas Minneapolis, Minnesota

ACADEMIC AFFILIATIONS:

2006-Present	Adjunct Full Professor, Biomedical Engineering University of Minnesota, Minneapolis
2003-Present	Adjunct Full Professor, Biomedical Engineering California Polytechnic State University, San Luis Obispo. (There was a 2-year hiatus from 2010 to Feb 2012)
2002-2016	Faculty for Creativity and Innovation Program UCLA

PROFESSIONAL POSITIONS:

Research Aide (1970-1972)

Medtronic, Inc., Minneapolis, Minnesota

Teaching Assistant and Graduate Instructor (1973-1978)

Economics, Mathematics & Electrical Engineering Departments

University of Minnesota, Minneapolis, Minnesota

Vice President, Research & Development (1978-1985)

Intercomp Company, Plymouth, Minnesota

Vice President, Research & Development (1985-1991)

Cherne Medical, Inc., Edina, Minnesota

Vice President, Research (1991-1995)

Angeion Corp., Plymouth, Minnesota

Vice President, Tachycardia Business Unit (1995-1997)

St. Jude Medical, Inc., Los Angeles, California

Vice President, Research and Development for Daig subsidiary (1997-1999)

St. Jude Medical, Inc. Cardiac Rhythm Management Division

Senior Vice President, Technology and Design (1999-2000)

St. Jude Medical, Inc. Cardiac Rhythm Management Division

Senior Vice President, Chief Technology Officer (2001-August 2005) St. Jude Medical, Inc. Cardiac Rhythm Management Division

Principal, Mark Kroll & Associates, LLC (March 2006 to present)

HONORS AND AWARDS:

1969	National Science Foundation High School Honors Program
1970	Putnam Varsity Team (Intercollegiate Mathematics Competition) when Freshman
1971	Alfred P. Sloan Fellowship
1971	Ellerbe Scholastic Award for Institute of Technology
1992	Who's Who in Science and Engineering
1993	Who's Who in the Midwest
1996	Who's Who in the West
1998	Prolific Inventor, U.S. Patent and Trademark Office
1997	Who's Who in Medicine and Healthcare
2010	Career Achievement Award by Engineering in Medicine and Biology Society
2012	Outstanding Achievement Award: Distinguished Graduate, University of Minnesota.
2016	Mark Kroll Medical Innovation Day proclamation by Minnesota Governor.

FOR-PROFIT BOARDS:

Haemonetics (NYSE:HAE)

Axon Enterprises (NASD:AAXN)

Prostacare (private)

VivaQuant (private)

NON-PROFIT BOARDS & MAJOR COMMITTEES:

IEC (International Electrotechnical Commission) TC64 MT4 committee responsible for the basic international electrical safety standards.

ANSI (American National Standards Institute) CPLSO committee for high-voltage security systems.

EDITORIAL ROLES:

Europace: Regular Reviewer
EMBS Conference: Regular Reviewer
Heart Rhythm Journal: Ad Hoc Reviewer
J of Cardiovascular Electrophysiology: Ad Hoc Reviewer
IEEE Trans on Biomedical Engineering: Ad Hoc Reviewer
Journal American College of Cardiology: Ad Hoc Reviewer
Pacing and Clinical Electrophysiology: Regular Reviewer
J Occupational & Environmental Medicine: Ad Hoc Reviewer
Journal of Medical Science: Ad Hoc Reviewer
IEEE Trans Biomedical Circuits & Systems: Ad Hoc Reviewer
J of Interventional Cardiac Electrophysiology: Regular Reviewer
J of Forensic & Legal Medicine: "Outstanding" Reviewer
Nature Scientific Reports: Ad Hoc Reviewer
J American Medical Association: Ad Hoc Reviewer
British Medical J: Ad Hoc Reviewer

ISSUED U.S. PATENTS:

4,672,976	Heart Sound Sensor
4,672,977	Lung Sound Cancellation Method and Apparatus
4,714,121	Wheel Scale Assembly
4,744,369	Medical Current Limiting Circuit
4,763,660	Flexible and Disposable Electrode Belt Device
4,769,760	Terrain Biased Dynamic Multiple Threshold Synchronization Method and Apparatus
4,775,018	Load Cell Assembly
4,811,156	Medical Current Limiter
4,832,608	Electrode Belt Adapter
4,879,760	Optical Fiber Transmissive Signal Modulation System
4,890,630	Bio-Electric Noise Cancellation System
4,947,859	Bio-Acoustic Sound Sensor
4,956,877	Optical Fiber Reflective Signal Modulation System
5,117,834	Method and Apparatus for Non-invasively Determining a Patient's Susceptibility to Ventricular Arrhythmias
5,188,116	Electrocardiographic Method and Device
5,199,429	Implantable Defibrillator System with Switched Capacitors
5,241,960	Small Implantable Cardioverter Defibrillator System
5,257,634	Low Impedance Defibrillation Catheter

5,258,906	Medical Metering and Invoicing Method
5,265,623	Optimized Field Defibrillation Catheter
5,300,110	Dirk Based Defibrillation Electrode
5,306,291	Optimal Energy Steering
5,312,443	Arrhythmia Detection Criteria Process
5,314,448	Pulse Pre-Treatment Method of Defibrillation
5,325,870	Multiplexed Defibrillation Electrode Apparatus System
5,330,509	Far-Field Anti-Tachycardia Termination
5,334,219	Separated Capacitor Cardioversion
5,336,245	Electrogram Interrogation Apparatus Storage
5,342,399	Process for Defibrillation with Small Capacitor
5,351,687	Method and Apparatus for Non-invasively Determining a Patient's Susceptibility to Ventricular Arrhythmias
5,366,484	Narrow Pulse Cardioversion
5,366,485	Pulse Pretreatment Device
5,366,487	Pulse Correlation Detection Method
5,376,103	Improved Electrode System
5,383,907	System and Method for Delivering Multiple Closely Spaced Defibrillation Pulses
5,391,185	Atrial Cardioverter with Ventricular Protection

5,391,186	Method and Apparatus for Utilizing Short TAU Capacitors in an Implantable Cardioverter Defibrillator
5,405,363	Implantable Cardioverter Defibrillator Having a Smaller Displacement Volume
5,407,444	Cardioversion Method
5,411,526	True Voltage Pulse Defibrillation
5,413,591	Current Truncated Waveform Defibrillator
5,431,686	Optimal Pulse Duration
5,431,687	Impedance Timed Defibrillation System
5,439,482	Prophylactic Implantable Cardioverter Defibrillator
5,441,518	Implantable Cardioverter Defibrillator System Having Independently Controllable Electrode Discharge Pathway
5,447,521	Safety System for an Implantable Defibrillator
5,449,377	Overcharged Final Countershock for an Implantable Cardioverter Defibrillator and Method
5,454,839	Low Profile Defibrillation Catheter
5,458,620	Interdependent Detection Parameter Method of Diagnosing Fibrillation
5,507,781	Implantable Defibrillator System with Capacitor Switching Circuitry
5,514,160	Implantable Defibrillator for Producing a Rectangular-Shaped Defibrillation Waveform
5,522,853	Method and Apparatus for Progressive Recruitment of Cardiac Fibrillation

5,527,346	Implantable Cardioverter Defibrillator Employing Polymer Thin Film Capacitors
5,531,764	Implantable Defibrillator System and Method Having Successive Changeable Defibrillation Waveforms
5,531,766	Implantable Cardioverter Defibrillator Pulse Generator Kite-Tail Electrode System
5,531,770	Implantable Defibrillator for Producing a Rectangular – Shaped Defibrillation Waveform
5,531,782	Implantable Medical Electrode with Reduced Number of Conductors
5,534,015	Method and Apparatus for Generating Biphasic Waveforms in an Implantable Defibrillator
5,540,721	Process and Apparatus for Defibrillation with a Small Capacitor
5,549,643	Optimal Pulse Defibrillator
5,549,933	Process for Painting Snow; Powder; Nontoxic
5,584,866	Method and Apparatus for Temporarily Electrically Forcing Tachyarrhythmia Patient
5,591,209	Implantable Defibrillator System for Generating an Active Biphasic Waveform
5,591,210	Implantable Defibrillation System and Method for Producing Only Short Pulses
5,607,460	Physician Interface Export System for Programming Implantable Treatment Devices
5,620,464	System and Method for Delivering Multiple Closely Spaced Defibrillation Pulses
5,620,469	Stepped Cardioversion System for an Implantable Cardioverter Defibrillator

5,643,323	System and Method Inducing Fibrillation Using an Implantable Defibrillator
5,645,572	Implantable Cardioverter Defibrillator with Slew Rate Limiting
5,645,573	Optimal Pulse Defibrillator
5,649,974	Low Profile Defibrillation Catheter
5,658,319	Implantable Cardioverter Defibrillator Having a High Voltage Capacitor
5,662,534	Golf Ball Finding System
5,662,696	One Piece Disposable Threshold Test Can Electrode for Use with an Implantable Cardioverter Defibrillator System
5,674,248	Staged Energy Concentration for an Implantable Biomedical Device
5,690,685	Automatic Battery-Maintaining Implantable Cardioverter Defibrillator and Method for Use
5,697,953	Implantable Cardioverter Defibrillator Having a Smaller Displacement Volume
5,709,709	ICD with Rate-Responsive Pacing
5,713,944	Cardioversion-Defibrillation Catheter Lead Having Selectively Exposable Outer Conductors
5,718,718	Method and Apparatus for Polarity Reversal of Consecutive Defibrillation Countershocks Having Back Biasing Precharge Pulses
5,733,309	Method and Apparatus for Capacitive Switching Output for Implantable Cardioverter Defibrillator

5,735,876	Electrical Cardiac Output Forcing Method and Apparatus for an Atrial Defibrillator
5,735,878	Implantable Defibrillator Having Multiple Pathways
5,738,105	Method and Apparatus for Sensing R-Waves Using Both Near Field and Far Field Sensing Simultaneously
5,741,303	Electrode Back-Charging Pre-Treatment System for an Implantable Cardioverter Defibrillator
5,741,307	Method for Determining an ICD Replacement Time
5,749,910	Shield for Implantable Cardioverter Defibrillator
5,761,019	Medical Current Limiter
5,772,689	Implantable Cardioverter-Defibrillator with Apical Shock Delivery
5,772,690	System Having a Surrogate Defibrillation Electrode for Testing Implantable Cardioverter-Defibrillators During Implant
5,782,883	Suboptimal Output Device to Manage Cardiac Tachyarrhythmias
5,814,075	Method and Apparatus for Optimizing Source Allocation Within an Implantable Cardioverter-Defibrillator
5,827,326	Implantable Cardioverter Defibrillator Having a Smaller Energy Storage Capacity
5,830,236	System for Delivering Low Pain Therapeutic Electrical Waveforms to the Heart
5,833,712	Implantable Defibrillator System for Generating a Biphasic Waveform

5,836,973	Staged Energy Concentration for an Implantable Biomedical Device
5,861,006	System for Selectively Reforming an ICD
5,871,505	Apparatus for Generating Biphasic Waveforms in an Implantable Defibrillator
5,871,510	Method and Apparatus for Temporarily Electrically Forcing Cardiac Output as a Backup for Tachycardia Patients
5,899,923	Automatic Capacitor Maintenance System for an Implantable Cardioverter Defibrillator
5,904,705	Automatic Battery-Maintaining Implantable Cardioverter Defibrillator and Method for Use
5,906,633	System for Delivering Low Pain Therapeutic Electrical Waveforms to the Heart
5,913,877	Implantable Defibrillator System for Generating a Biphasic Waveform with Enhanced Phase Transition
5,925,068	Method for Determining an ICD Replacement Time
5,925,066	Atrial Arrhythmia Sensor with Drug and Electrical Therapy Control Apparatus
5,944,746	ICD with Continuous Regular Testing of Defibrillation Lead Status
5,957,956	Implantable Cardioverter Defibrillator Having a Smaller Mass
5,978,703	Method and Apparatus for Temporarily Electrically Forcing Cardiac Output in a Tachyarrhythmia Patient
5,988,161	Altitude Adjustment Method and Apparatus
6,007,395	Sun Tanning Life Vest

6,041,255	Disposable External Defibrillator
6,062,474	ATM Signature Security System
6,093,982	High Voltage Output Array Switching System
6,101,414	Method and Apparatus for Antitachycardia Pacing with an Optimal Coupling Interval
6,112,118	Implantable Cardioverter Defibrillator with Slew Rate Limiting
6,115,597	Disposal Emergency Cellular Phone
6,132,426	Temperature and Current Limited Ablation Catheter
6,167,306	Method and Apparatus for Electrically Forcing Cardiac Output in an Arrhythmia Patient
6,169,923	Implantable Cardioverter-Defibrillator with Automatic Arrhythmia Detection Criteria Adjustment
6,185,457	Method and Apparatus for Electrically Forcing Cardiac Output in an Arrhythmia Patient
6,198,249	Thermal Booster Battery System
6,208,899	Implantable Cardioversion Device with Automatic Filter Control
6,219,582	Temporary Atrial Cardioversion Catheter
6,233,483	System and Method for Generating a High Efficiency Biphasic Defibrillation Waveform for Use in an Implantable Cardioverter/ Defibrillator (ICD).
6,282,444	Implantable Device with Electrical Infection Control
6,287,306	Even Temperature Linear Lesion Ablation Catheter
6,292,694	Implantable Medical Device Having Atrial Tachyarrhythmia Prevention Therapy

6,314,319	Method and Apparatus for Temporarily Electrically Forcing Cardiac Output in a Tachyarrhythmia Patient
6,327,498	Implantable Stimulation Lead for Use with an ICD Device Having Automatic Capture Pacing Features
6,345,200	Implant Guiding Programmer for Implantable Cardioverter Defibrillator
6,350,168	Light Selective Sport Garments
6,366,808	Implantable Device and Method for the Electrical Treatment of Cancer
6,370,234	Public Service Answering Point with Automatic Triage Capability
6,405,922	Keyboard Signature Security System
6,408,206	Disposable External Defibrillator
6,411,844	Fast Recovery Sensor Amplifier Circuit for Implantable Medical Device
6,438,426	Temporary Atrial Cardioversion Catheter
6,442,426	Implantable Ventricular Cardioverter-Defibrillator Employing Atrial Pacing for Preventing Atrial Fibrillation from Ventricular Cardioversion and Defibrillation Shocks
6,445,949	Implantable Cardioversion Device with a Self-Adjusting Threshold for Therapy Selection
6,445,950	Implantable Cardioverter/Defibrillator Employing Shock Delivery Timing for Preventing Induced Fibrillation
6,456,876	Dual-Chamber Implantable Cardiac Stimulation System and Device with Selectable Arrhythmia Termination Electrode Configurations and Method

6,484,056	System and Method of Generating a High Efficiency Biphasic Defibrillation Waveform for Use in an Implantable Cardioverter/ Defibrillator (ICD)
6,539,254	Implantable Ventricular Cardioverter-Defibrillator Employing Atrial Pacing for Preventing Atrial Fibrillation from Ventricular Cardioversion and Defibrillation Shocks
6,549,806	Implantable Dual Site Cardiac Stimulation Device Having Independent Automatic Capture Capability
6,549,807	Implantable Cardioverter Defibrillator Having a Rechargeable, Fast-Charging Battery and Method Thereof
6,560,484	Method and Apparatus for Electrically Forcing Cardiac Output in an Arrhythmia Patient
6,560,974	Nitrogen-Based Refrigerator Crisper
6,561,185	Altitude Adjustment Method and Apparatus
6,567,697	External Defibrillator with Electrical CPR Assist
6,578,499	Wind and Insect Resistant Picnic System
6,580,908	Generic Number Cellular Telephone
6,580,915	Aircraft Internal EMI Detection and Location
6,590,534	Electronic Car Locator
6,609,027	His Bundle Sensing Device and Associated Method
6,625,493	Orientation of Patient's Position Sensor Using External Field
6,628,986	System for Predicting Defibrillation Threshold Based on Patient Data

6,645,153	System and Method for Evaluating Risk of Mortality Due to Congestive Heart Failure Using Physiologic Sensors
6,658,292	Detection of Patient's Position and Activity Using 3D Accelerometer-Based Position Sensor
6,662,047	Pacing Mode to Reduce Effects of Orthostatic Hypotension and Syncope
6,687,542	XY Selectable Lead Assembly
6,694,188	Dynamic Control of Overdrive Pacing Based on Degree of Randomness Within Heart Rate
6,714,818	System and Method of Generating an Optimal Three-Step Defibrillation Waveform for Use in an Implantable Cardioverter/Defibrillator (ICD)
6,731,982	Anti-Tachycardia Pacing Methods and Devices
6,738,663	Implantable Device and Method for the Electrical Treatment of Cancer
6,744,152	Implantable Cardioverter Defibrillator with Switchable Power Source and Patient Warning System Cardiac Device
6,745,073	System and Method of Generating a Low-Pain Multi-Step Defibrillation Waveform for Use in an Implantable Cardioverter/Defibrillator (ICD)
6,748,261	Implantable Cardiac Stimulation Device for and Method of Monitoring Progression or Regression of Heart Disease by Monitoring Interchamber Conduction Delays
6,751,503	Methods and Systems for Treating Patients with Congestive Heart Failure (CHF)
6,754,531	Anti-Tachycardia Pacing Methods and Devices

6,760,625	Battery Monitoring System for an Implantable Medical Device
6,763,266	System and Method of Generating a Low-Pain Multi-Step Defibrillation Waveform for Use in an Implantable Cardioverter/Defibrillator (ICD)
6,766,194	Dynamic Control of Overdrive Pacing Based on Degree of Randomness Within Heart Rate
6,766,196	Anti-Tachycardia Pacing Methods and Devices
6,772,007	System and Method of Generating a Low-Pain Multi-Step Defibrillation Waveform for Use in an Implantable Cardioverter/Defibrillator (ICD)
6,775,571	Dynamic Control of Overdrive Pacing Based on Degree of Randomness Within Heart Rate
6,780,181	Even Temperature Linear Lesion Ablation Catheter
6,795,731	Anti-Tachycardia Pacing Methods and Devices
6,804,577	Battery Monitoring System for an Implantable Medical Device
6,817,520	Magnetic Card Swipe Signature Security System
6,826,427	Methods and Devices for Inhibiting Battery Voltage Delays in an Implantable Cardiac Device
6,853,859	Electrical Cardiac Output Forcer
6,854,844	Tan-Thru Sunglasses
6,862,475	Pediatric Rate Varying Implantable Cardiac Device
6,865,420	Cardiac Stimulation Device for Optimizing Cardiac output with Myocardial Ischemia Protection
6,904,314	Automatic defibrillation threshold tracking

6,907,286	Anti-tachycardia pacing methods and devices
6,928,321	Hypnosis augmented ICD
6,931,278	Implantable cardioverter defibrillator having fast action operation
6,937,896	Sympathetic nerve stimulator and/or pacemaker
6,954,669	System and method of generating an optimal three-step defibrillation waveform for use in an implantable cardioverter/defibrillator (ICD)
6,961,615	System and method for evaluating risk of mortality due to congestive heart failure using physiologic sensors
6,964,116	Ambulatory hairdryer
6,968,574	Light selective sports garments
6,980,850	System and method for emulating a surface EKG using an implantable cardiac stimulation device
6,987,999	Implantable defibrillator with alternating counter electrode
6,993,379	System and method for emulating a surface EKG using an implantable cardiac stimulation device
6,997,180	Breathing gas therapeutic method and apparatus
7,003,348	Monitoring cardiac geometry for diagnostics and therapy
7,010,358	Single lead system for high voltage CHF device
7,010,346	Implantable medical device having atrial tachyarrhythmia prevention therapy

7,006,867	Methods and apparatus for overdrive pacing multiple atrial sites using an implantable cardiac stimulation device
7,006,347	Low deformation electrolytic capacitor
7,006,867	Methods and apparatus for overdrive pacing multiple atrial sites using an implantable cardiac stimulation device
7,010,346	Implantable medical device having atrial tachyarrhythmia prevention therapy
7,010,358	Single lead system for high voltage CHF device
7,016,720	System and method for monitoring blood glucose levels using an implantable medical device
7,020,521	Methods and apparatus for detecting and/or monitoring heart failure
7,024,243	System and methods for preventing, detecting, and terminating pacemaker mediated tachycardia in biventricular implantable cardiac stimulation device
7,029,443	System and method for monitoring blood glucose levels using an implantable medical device
7,043,301	Implantable cardiac stimulation system providing high output far-field pacing and method
7,062,328	System and method for providing improved specificity for automatic mode switching within an implantable medical device
7,072,712	Disposable external defibrillator with hinged housing halves
7,076,295	Automatic defibrillation shock energy adjuster

7,076,300	Implantable cardiac stimulation device and method that discriminates between and treats atrial tachycardia and atrial fibrillation
7,076,301	Implantable cardiac stimulation device that minimizes parasitic muscle stimulation and method
7,079,891	System and method for providing cardioversion therapy and overdrive pacing using an implantable cardiac stimulation device
7,103,412	Implantable cardiac stimulation device and method for detecting asymptomatic diabetes
7,113,822	System and method for providing cardioversion therapy and overdrive pacing using an implantable cardiac stimulation device
7,120,491	Implantable cardioversion device with a self-adjusting threshold for therapy selection
7,123,961	Stimulation of autonomic nerves
7,139,611	System and method for rejecting far-field signals using an implantable cardiac stimulation device
7,149,579	System and method for determining patient posture based on 3-D trajectory using an implantable medical device
7,149,584	System and method for determining patient posture based on 3-D trajectory using an implantable medical device
7,155,277	Pathway management for CHF patients
7,155,286	System and method for reducing pain associated with cardioversion shocks generated by implantable cardiac stimulation devices
7,158,825	Implantable cardioverter defibrillator with leakage detection and prevention system

7,158,826	System and method for generating pain inhibition pulses using an implantable cardiac stimulation device
7,162,299	ICD with VF prevention
7,164,944	Analgesic therapy for ICD patients
7,164,950	Implantable stimulation device with isolating system for minimizing magnetic induction
7,171,268	Implantable cardiac stimulation device providing accelerated defibrillation delivery and method
7,181,281	ICD using MEMS for optimal therapy
7,181,277	Methods and systems for reducing the likelihood of arrhythmia onset
7,181,269	Implantable device that diagnoses ischemia and myocardial infarction and method
7,177,684	Activity monitor and six-minute walk test for depression and CHF patients
7,175,271	Tan-thru glasses
7,177,684	Activity monitor and six-minute walk test for depression and CHF patients
7,181,269	Implantable device that diagnoses ischemia and myocardial infarction and method
7,181,277	Methods and systems for reducing the likelihood of arrhythmia onset
7,181,281	ICD using MEMS for optimal therapy
7,191,002	Anti-tachycardia pacing methods and devices

7,194,304	Implantable cardiac defibrillation assembly including a self-evaluation system and method
7,200,437	Tissue contact for satellite cardiac pacemaker
7,203,546	System and method of implementing a prophylactic pacer/defibrillator
7,203,547	System and method of implementing a prophylactic pacer/defibrillator
7,203,550	Implantable medical device with a current generated for infection control
7,212,855	System and method for providing preventive overdrive pacing and antitachycardia pacing using an implantable cardiac stimulation device
7,212,859	Dual-chamber implantable cardiac stimulation system and device with selectable arrhythmia termination electrode configurations and method
7,225,030	Management of implantable devices
7,225,029	Implantable cardiac therapy device with dual chamber can to isolate high-frequency circuitry
7,225,020	System and method for providing preventive overdrive pacing and antitachycardia pacing using an implantable cardiac stimulation device
7,225,029	Implantable cardiac therapy device with dual chamber can to isolate high-frequency circuitry
7,225,030	Management of implantable devices
7,231,255	System and method for reducing pain associated with cardioversion shocks generated by implantable cardiac stimulation devices

7,254,440	Implantable ischemia and myocardial infarction monitor and method
7,260,433	Subcutaneous cardiac stimulation device providing anti-tachycardia pacing therapy and method
7,270,411	Light selective sports garments
7,272,438	Mode switching heart stimulation apparatus and method
7,274,961	Implantable cardiac stimulation device and method that discriminates between and treats ventricular tachycardia and ventricular fibrillation
7,277,755	Subcutaneous cardiac stimulation device providing anti-tachycardia pacing therapy and method
7,283,871	Self adjusting optimal waveforms
7,292,886	Bifocal cardiac stimulation device and methods
7,295,873	Anti-tachycardia pacing method and apparatus for multi-chamber pacing
7,305,266	Cardiac stimulation devices and methods for measuring impedances associated with the heart
7,305,270	Cardiac pacing/sensing lead providing far-field signal rejection
7,308,305	Optimally timed early shock defibrillation
7,308,307	Implantable single-chamber atrial pacing device providing active ventricular far field sensing and rate limit
7,321,792	Pacing therapy and acupuncture
7,324,849	Methods and devices for inhibiting battery voltage delays in an implantable cardiac device

7,333,854	Orthostatic cardiac output response pacer for heart failure patients and diabetic patients
7,340,302	Treating sleep apnea in patients using phrenic nerve stimulation
7,359,752	Configurable test load for an implantable medical device
7,363,081	System and method for providing preventive over-drive pacing and antitachycardia pacing using an implantable cardiac stimulation device
7,363,086	Capture verification in respiratory diaphragm stimulation
7,369,898	System and method for responding to pulsed gradient magnetic fields using an implantable medical device
7,373,202	Unipolar and bipolar lead cardiac pacemaker and method for inhibiting anode stimulation
7,386,342	Subcutaneous cardiac stimulation device providing anti-tachycardia pacing therapy and method
7,386,343	Spectrum-driven arrhythmia treatment method
7,389,140	Adjustment of stimulation current path
7,398,122	Self adjusting optimal waveforms
7,403,823	Super plastic design for CHF pacemaker lead
7,412,285	Method and device for treating cancer with electrical therapy in conjunction with chemotherapeutic agents and radiation therapy
7,413,302	Tan thru glasses
7,414,534	Method and apparatus for monitoring ingestion of medications using an implantable medical device

7,421,292	System and method for controlling the recording of diagnostic medical data in an implantable medical device
7,438,283	Toddler stair safety system
7,444,154	Nuisance cell phone locator
7,447,544	System and method for controlling the recording of diagnostic medical data in an implantable medical device
7,450,995	Implantable cardiac stimulation device including an output circuit that provides arbitrarily shaped defibrillation waveforms
7,454,249	Early warning for lead insulation failure
7,457,636	Self defense cellular telephone
7,467,012	Respiration parameters controlled by heart rate
7,480,531	System and method for reducing pain associated with cardioversion shocks generated by implantable cardiac stimulation devices
7,483,715	Self defense cell phone with projectiles
7,520,081	Electric immobilization weapon
7,526,336	Left heart implantable cardiac stimulation system with clot prevention and method
7,540,605	Tan-through sunglasses
7,565,195	Failsafe satellite pacemaker system
7,570,995	Method for reforming a capacitor in an implantable medical device
7,577,478	Ischemia detection for anti-arrhythmia therapy

7,585,071	Tan thru glasses
7,587,239	Cardiac pacemaker system, lead and method for rejecting far-field signals
7,590,445	Indirect mechanical medical therapy system
7,596,410	Tiered antitachycardia pacing and pre-pulsing therapy
7,596,412	Opto-electrical coherence detection of hemodynamically compromising arrhythmia
7,610,090	Implantable medical device with automatic sensing adjustment
7,613,513	System and method for determining cardiac geometry
7,634,313	Failsafe satellite pacemaker system
7,640,065	Cardiac constraint/therapeutic stimulation device
7,653,440	Stimulation lead and methods of stimulating
7,654,230	Domestic animal telephone
7,654,964	System and method for detecting arterial blood pressure based on aortic electrical resistance using an implantable medical device
7,676,266	Monitoring ventricular synchrony
7,680,529	System and method for monitoring blood glucose levels using an implantable medical device
7,684,870	Direct current fibrillator
7,689,280	Automatic system for determining bi-ventricular pacing responders

7,706,864	Method and apparatus for electrically forcing cardiac output in an arrhythmia patient
7,711,415	Implantable devices, and methods for use therewith, for monitoring sympathetic and parasympathetic influences on the heart
7,720,549	Partially implantable system for the electrical treatment of abnormal tissue growth
7,756,577	Multi-modal medical therapy system
7,751,887	Tiered antitachycardia pacing and pre-pulsing therapy
7,747,320	Responding a partial lead failure in an implantable cardioverter defibrillator
7,742,811	Implantable device and method for the electrical treatment of cancer
7,738,954	His bundle control
7,747,320	Responding a partial lead failure in an implantable cardioverter defibrillator
7,751,887	Tiered antitachycardia pacing and pre-pulsing therapy
7,756,577	Multi-modal medical therapy system
7,787,961	Reduced-diameter body-implantable leads and methods of assembly
7,805,158	Self defense cell phone with acceleration sensor and emergency call button
7,809,439	Spectrum-driven arrhythmia treatment method
7,813,798	Systems and methods for preventing, detecting, and terminating pacemaker mediated tachycardia in

	biventricular implantable cardiac stimulation systems
7,848,804	Apparatus and related methods for capacitor reforming
7,848,806	Virtual electrode polarization for shock therapy
7,856,268	Ischemia detection for anti-arrhythmia therapy
7,859,818	Electronic control device with wireless projectiles
7,876,228	Method and apparatus for monitoring ingestion of medications using an implantable medical device
7,878,152	Domestic animal telephone
7,894,915	Implantable medical device
7,899,537	Pericardial cardioverter defibrillator
7,946,056	Ambulatory hairdryer
7,970,465	Decision paradigms for implantable cardioverter-defibrillators
7,986,965	Self defense cell phone with shocking circuitry
8,005,474	Cell phone locator method
8,014,854	Method and device for treating abnormal tissue growth with electrical therapy
8,060,200	Self-adjusting optimal waveforms
8,121,680	Subcutaneous cardiac stimulation device providing anti-tachycardia pacing therapy and method
8,099,174	Left heart implantable cardiac stimulation system with clot prevention electrode body coating and method
8,123,716	Pericardial delivery of treatment

8,160,655	Automatic recharging wireless headset
8,170,689	Implantable cardiac defibrillation system with defibrillation electrode entrapment prevention and method
8,200,330	Responding to partial lead failure in an implantable cardioverter defibrillator
8,201,522	Domestic animal telephone
8,269,635	Method and apparatus for monitoring ingestion of medications using an implantable medical device
8,269,636	Method and apparatus for monitoring ingestion of medications using an implantable medical device
8,340,731	Automatic recharging wireless headset
8,352,033	Apparatus and methods for measuring defibrillation lead impedance via a high magnitude, short duration current pulse
8,401,637	Medium voltage therapy applications in treating cardiac arrest
8,483,822	Adaptive medium voltage therapy for cardiac arrhythmias
8,551,019	Variable stiffness guide wire
8,577,425	Automatic recharging wireless headset
8,600,494	Method and device for treating abnormal tissue growth with electrical therapy
8,676,317	System and method for estimating defibrillation impedance based on low-voltage resistance measurements using an implantable medical device

8,700,156	High accuracy painless method for measuring defibrillation lead impedance
8,718,759	Multi-modal electrotherapy method and apparatus
8,750,990	Coordinated medium voltage therapy for improving effectiveness of defibrillation therapy
8,750,972	Implantable medical device with automatic sensing adjustment
8,805,495	Adaptive medium voltage therapy for cardiac arrhythmias
8,812,103	Method for detecting and treating insulation lead-to-housing failures
8,868,178	Arrhythmia electrotherapy device and method with provisions for mitigating patient discomfort
8,868,186	Methods for measuring impedances associated with the heart
9,061,164	Method for coordinating medium voltage therapy for improving effectiveness of defibrillation therapy
9,144,684	Medium voltage therapy applied as a test of a physiologic state
9,168,381	Arrhythmia electrotherapy device and method with provisions for inferring patient discomfort from evoked response
9,272,150	Method for detecting and localizing insulation failures of implantable device leads
9,333,009	Spinal correction system actuators
9,408,638	Spinal correction system actuators
9,421,391	Coordinated medium voltage therapy for improving effectiveness of defibrillation therapy

9,427,577	Method for detecting and treating insulation lead-to-housing failures
9,480,851	Multi-modal electrotherapy method and apparatus
9,636,500	Active surveillance of implanted medical leads for lead integrity
9,636,504	Arrhythmia electrotheraphy device and method with provisions for mitigating patient discomfort
9,675,799	Method and apparatus for implantable cardiac lead integrity analysis
9,713,727	Cardiac-safe electrotherapy method and apparatus
9,821,156	Apparatus for detecting and localizing insulation failures of implantable device leads
9,895,168	Spinal correction system actuators
9,987,485	Method and apparatus for implantable cardiac lead integrity analysis
10,039,919	Methods and apparatus for detecting and localizing partial conductor failures of implantable device leads
10,118,031	Method and apparatus for implantable cardiac lead integrity analysis
10,143,851	Arrhythmia electrotherapy device and method with provisions for mitigating patient discomfort
10,238,884	Cardiac-safe electrotherapy method and apparatus
10,252,069	Micro-charge ICD lead testing method and apparatus
10,675,062	Spinal correction system actuators

10,792,493 Method and apparatus for implantable cardiac lead integrity analysis

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AU1305795A1	Implantable defibrillator employing polymer thin film capacitors
AU1696897A1	Medical current limiter
AU2003299471	Method and Device for Treating Cancer with Electrical Therapy in Conjunction with Chemotherapeutic Agents and Radiation Therapy
AU2012261983B2	Spinal correction system actuators
AU3625295A1	Low profile defibrillation catheter
AU697971B2	Medical current limiter
AU9048267	Bio-acoustic signal sensor
AU921460392A1	Electrocardiographic signal processing device
AU9513055	Implantable cardioverter defibrillator (extended shock duration)
AU9513057	Implantable cardioverter defibrillator (polymer thin film capacitors)
AU952637295	Implantable Defibrillator System for Generating Biphasic Waveforms
AU9539631	Implantable cardioverter defibrillator (stepped cardioversion)
AU9716968	Two terminal bi-directional medical current limiter
CA1291792	Flexible and Disposable Electrode Belt Device
CA2838047A1	Spinal correction system actuators
CN103781429B	Spinal correction system actuators
DE3637956	Flexible egwerfbare elektrodenbandvorrichtung (electrode belt)

DE60016125T	Implantable Cardioversion Device with Automatic Filter Control
DE60026121T	Implantable ventricular cardioverter/defibrillator employing atrial pacing for preventing atrial fibrillation from ventricular cardioversion and defibrillation shocks
DE60114507T	Method and apparatus for biventricular stimulation and capture monitoring
DE60203863T	XY Selectable lead assembly
DE60212280T	Pacing mode to reduce effects of orthostatic hypotension and syncope
DE60303758T	System for monitoring blood glucose levels using an implantable medical device
DE69218658	Implantable defibrillator system providing waveform optimization
DE69228735T2	Defibrillationssystem mit einem kleinen kondensator
DE69230430C0	Vorrichtung zur behandlung von herz vor einer defibrillation
DE69319641T2	Detektion von tachykardie und herzflimmern
DE69320474T2	Implantierbarer kardiovertierer/defibrillator mit einem kleineren verdraengungsvolumen
DE69321629T2	Optimale energiesteuerung fuer einen implantierbaren defibrillator
DE69323868C0	Herzrhythmuskorrektur mittels kurzer impulse
DE69936786T	Temporary atrial cardioversion electrode catheter
EP1046409	An implantable cardioverter-defibrillator with automatic arrhythmia detection criteria adjustment
EP1084730	Implantable cardioversion device with automatic filter control

EP1114653	An Implantable Cardioversion Device with a Self-Adjusting Threshold for Therapy Selection
EP1127587	Dual-Chamber Implantable Cardiac Stimulation System and Device with Selectable Arrhythmia Termination Electrode Configurations and Method
EP1140279	Temporary atrial cardioversion electrode catheter
EP1155711	Method and Apparatus for Biventricular Stimulation and Capture Monitoring
EP1155712	Implantable dual site cardiac stimulation device having independent automatic capture capability
EP1205215	Implantable Cardioverter Defibrillator Having a Rechargeable, Fast-Charging Battery and Method Thereof
EP1234597	His Bundle Sensing Device and Associated Method
EP1291036	Pacing Mode to Reduce Effects of Orthostatic Hypotension and Syncope
EP1300175	Xy selectable lead assembly
EP1304137	Anti-tachycardia pacing devices
EP1304138	Automatic defibrillation shock energy adjuster
EP1306105	Implantable Cardiac Therapy Device with Dual Chamber Can
EP1308182	Implantable cardiac stimulation device
EP1419731	System and Method For Monitoring Blood Glucose Levels Using an Implantable Medical Device
EP1515775 (A2)	Method and device for treating cancer with electrical therapy in conjunction with chemotherapeutic agents and radiation therapy
EP1524008 (A1)	Implantable cardiac stimulation device providing arbitrarily shaped defibrillation waveforms
EP1570880 (A1)	Left heart implantable cardiac stimulation system with clot prevention

EP1598093 (A2)	System for automated fluid monitoring
EP1614446 (A2)	Electrically forcing cardiac output temporarily in tachycardia patients
EP1647301 (A1)	Mode switching heart stimulation apparatus and method
EP1666086 (A1)	Automatic capture pacing lead
EP1747039	Partially implantable system for the electrical treatment of cancer
EP2092953 (A3)	Implantable stimulation lead for use with an ICD device having autocapture pacing features
EP2713916B1	Spinal correction system actuators
EP2854702 (A1)	Method For Detecting And Localizing Insulation Failures Of Implantable Device Leads
EP2931362A1	Arrhythmia electrotherapy device and method with provisions for mitigating patient discomfort
EP2931364A1	Coordinated medium voltage therapy for improving effectiveness of defibrillation therapy
EP406381	Bio-acoustic signal sensor
EP515059	Implantable defibrillator system providing waveform optimization
EP540266	Cardiac Pacemaker with Pretreatment Circuit
EP547878A3	Defibrillation Pulse Generator with Small Value Capacitor
EP558353	Implantable Defibrillation System with Optimum Energy Steering
EP560569	Defibrillation and Tachycardia Detection System
EP578700	Electrocardiographic signal processing device
EP636041	Cardioversion Waveform Production Circuit for Tachycardia Termination

EP642368	Treatment of Ventricular Tachycardia Using Far-Field Pulse Series
EP642369B1	Implantable Cardioverter Defibrillator for Subcutaneous Location
EP720496A4	Prophylactic implantable cardioverter defibrillator
EP738171	Implantable cardioverter defibrillator (stepped cardioversion)
EP739223	Implantable cardioverter defibrillator (extended shock duration)
EP739224	Implantable cardioverter defibrillator (polymer thin film capacitors)
EP751805A4	Staged Energy Storage System for Implantable Defibrillator
EP820652	Two terminal bi-directional medical current limiter
FR642369R4	Implantable Cardioverter Defibrillator Having a Smaller Displacement Volume
FR720496R1	Prophylactic implantable cardioverter defibrillator
FR751805R1	Staged Energy Storage System for Implantable Defibrillator
GB2185403B	Flexible and Disposable Electrode Belt Device
GB642369R4	Implantable Cardioverter Defibrillator Having a Smaller Displacement Volume
GB720496R1	Prophylactic implantable cardioverter defibrillator
GB751805R1	Staged Energy Storage System for Implantable Defibrillator
IT642369R4	Implantable Cardioverter Defibrillator Having a Smaller Displacement Volume
JP6158176B2	Spinal correction system actuators
JP8509385 T2	Implantable Cardioverter Defibrillator for Subcutaneous Location

JP9622811W1	Staged Energy Storage System for Implantable Defibrillator
NL642369R4	Implantable Cardioverter Defibrillator for Subcutaneous Location
NL650383R4	Implantable Cardioverter Defibrillator Having a Smaller Displacement Volume
NL720496R1	Prophylactic implantable cardioverter defibrillator
NL751805R1	Staged Energy Storage System for Implantable Defibrillator
WO532020A1	Implantable Defibrillator System for Generating Biphasic Waveforms
WO0020071	Implantable Stimulation Lead for Use with an ICD Device Having Autocapture Pacing Features
WO0036987	Dual sensor ablation catheter
WO0038780	Temporary atrial cardioversion electrode catheter
WO0057955	Method and Apparatus for Electrically Forcing Cardiac Output in an Arrhythmia Patient
WO0187410	Cardiac Stimulation Devices and Methods for Measuring Impedances Associated with the Left Side of the Heart
WO020071A1	Implantable Stimulation Lead for Use with an ICD Device Having Autocapture Pacing Features
WO02068049	Implantable Medical Device with a Current Generated for Infection Control
WO03072192	Management of Implantable Devices
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WO036987A1	Dual sensor ablation catheter
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WO2005099812 (A2)	Partially Implantable System For The Electrical Treatment Of Cancer
WO2006058133 (A3)	Medium Voltage Therapy Applications In Treating Cardiac Arrest
WO2006085990 (A2)	Immobilization weapon
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WO2014091301A1	Arrhythmia electrotherapy device and method with provisions for mitigating patient discomfort
WO2014US32163	Cardiac-Safe Electrotherapy Method And Apparatus
WO2015148632 (A1)	Active Surveillance Of Implanted Medical Leads For Lead Integrity
WO2019168949 (A1)	System for managing high impedance changes in a non-thermal ablation system for BPH
WO9008506	Bio-acoustic signal sensor
WO9215245	Electrocardiographic signal processing device
WO9319809	Treatment of Ventricular Tachycardia Using Far-Field Pulse Series
WO9320892	Cardioversion Waveform Production Circuit for Tachycardia Termination
WO9400193A1	Implantable Cardioverter Defibrillator for Subcutaneous Location
WO9509030A3	Prophylactic ICD
WO9516492	Implantable cardioverter defibrillator (extended shock duration)

WO9516495	Implantable cardioverter defibrillator (polymer thin film capacitors)
WO9532020	Biphasic defibrillation waveform production method and apparatus
WO9606655	Low profile defibrillation catheter
WO9611035	Implantable cardioverter defibrillator (stepped cardioversion)
WO9622811A1	Staged Energy Storage System for Implantable Defibrillator
WO9622812	Implantable Cardioverter Defibrillator Pulse Generator Kite-Staged Energy Storage System for Implantable Cardioverter-Defibrillator
WO9715351	Method and Apparatus for Temporarily Electrically Forcing Cardiac Output as a Backup for Tachycardia Patients
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Note: Lectures to an organization do not always occur on their physical premises but rather at an associated teaching hospital or nearby meeting venue.

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