

# AMPERE 2021 Technical Program

## VIRTUAL CONFERENCE 13-16 September 2021

18<sup>th</sup> International Conference on Microwave and High Frequency Applications

With the conference getting closer, more than 70 papers have been accepted for oral presentations and 30 will be presented as posters. The program also includes very interesting plenary and keynote presentation as well as three round table / panel discussions on relevant topics.

The conference starts on Monday morning, with an optional choice between Modelling Workshop and Short Course, both with a great schedule of interesting presentations.

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## September 13 (Monday)

	Modelling Workshop	Short Course
08:00	Registration to the workshop	Registration to the short course
08:15	Introduction	Introduction
08:30-09:15	FDTD modelling of microwave and RF heating of materials: stability criteria, coupled problems, rotating loads, modelling of loaded waveguide systems. FDTD vs FE (FETD/FEFD), grid size and accuracy.	Applicator design: Implementation of certain EM modes
	<i>Prof. Vadim Yakovlev</i>	<i>Prof. Elías De los Reyes</i>
09:20-10:05	Numerical FE modeling of microwave and RF heating: material models and reversible /irreversible phase changes	From characterization to industrial applications of RF processing
	<i>Dr Magnus Olsson</i>	<i>Dr. Ricky Metaxas</i>
10:05-10:30	<b>Coffee Break</b>	
10:30-11:15	Coupled thermal-electromagnetic modelling of microwave heating - coupled effects, instabilities and runaway, modal analysis and multi-mode effects, hotspot formation, melting and plasma ejection	Introduction to EM modeling techniques
	<i>Prof. Eli Jerby</i>	<i>Dr Magnus Olsson</i>
11:20-12:05	Case study #1. Modelling of multimode applicators for metallurgical applications	Dielectric measurements in situ under a range of conditions
	<i>Prof Paolo Veronesi</i>	<i>Dr. Daniel Slocombe</i>
12:05-13:00	<b>Lunch</b>	
13:00-13:45	Case study #2. Modelling of resersible/irreversible phase changes during MW/RF heating: • Curie-temperature effect at induction hardening of ferrite to austenite	Applied RF Measurements
	<i>Dr. Magnus Olsson</i>	<i>Jens Koefoed</i>
13:50-14:35	Case study #3 Experimental validation of the temperature development in the material in a microwave resonator	Solid state technology /MW generators vs magnetron
	<i>Presenter pending</i>	<i>Dr. Klaus Werner</i>
14:35-15:00	<b>Coffee Break</b>	
15:00-15:45	Case study #4. Temperature fields in microwave thermal processing of conveyORIZED foods	Applicator design: Implementation of certain EM modes
	<i>Presenter pending</i>	<i>Dr. Guido Link</i>

15:50-16:35	Case study 5# Modeling of Thermal Processes in a MMW Heat Exchanger with an AlN:Mo Susceptor	Low noise microwave amplifiers at cryogenic temperatures
	<i>Prof. Vadim Yakovlev</i>	<i>Dr. Jörgen Stenarsson, Low Noise Factory</i>
16:40-17:25	Case study #6. EM simulations and antennas	"Numerical simulation of semiconductor devices - TCAD." GaN technologies for microwave and power applications. Electrical performance of different semiconductor devices through the use of TCAD.
	<i>Martin Trossing</i>	<i>Assoc. Prof. Hans Hjelmgren</i>
17:25-17:45	<b>Questions, comments and concluding remarks</b>	<b>Questions, comments and concluding remarks</b>

September 14 (Tuesday)

MUEGGE Auditorium			
09:00	<b>Opening Ampere 2021</b>		
09:15	<b>Keynote I Jan Stake: THz applications in pharmaceutical industry</b>		
10:00	<b>Plenary I Adrain Porch: From additive manufacturing to medical applications</b>		
10:45	<b>Plenary II JunWu Tao: Role of multiphysics modelling in microwave chemistry and materials processing applications</b>		
11:30	<b>Long break + exhibition + exhibition pitch opportunity</b>		
	COD ROOM	MACKEREL ROOM	HERRING ROOM
	<b>Food processing and process intensification I</b>	<b>Design of Applicators and Components I</b>	<b>Dielectric and Magnetic Material Properties and Measurements I</b>
12:30	INVESTIGATION OF MICROWAVE ASSISTED PULTRUSION (MAP) AND RESIN TRANSFER MOULDING (RTM) WITH THERMOPLASTIC RESIN AND CURE MONITORING Emmerich R.	DEMONSTRATION OF A COMBINED ACTIVE-PASSIVE METHODOLOGY FOR THE DESIGN OF SOLID-STATE-FED MICROWAVE OVENS Olszewska-Placha, M.	HOW MICROWAVE IMPACT ON PORCELAIN DIELECTRIC PROPERTIES, Jermolovicus, L. A.
12:50	A FLEXIBLE, MODULAR AND DIGITAL MICROWAVE SYSTEM FOR FOOD PASTEURIZATION AT ATMOSPHERIC PRESSURE Schneider J.	COAXIAL MAGNETRON LAUNCHER FOR 2.45 GHZ ISM BAND Bilik, V.	MICROWAVE MATERIALS CHARACTERISATION WITH SIMULTANEOUS STRUCTURAL TECHNIQUES Barter, M.
13:10	MICROWAVE HEATING OF LOW-LOSS DIELECTRIC FOOD PRODUCTS Curet S.	A COMPACT QUARTER WAVELENGTH FILTER FOR 3D MICROWAVE PRINTING OF CONTINUOUS FIBER REINFORCED POLYMERS Monzó-Cabrera, J.	MODELLING OF DIELECTRIC PROPERTIES OF FOOD WITH RESPECT TO MOISTURE CONTENT USING ADAPTED WATER ACTIVITY EQUATIONS Dimitrakis, G.
	<b>Medical and Biological Applications I</b>	<b>Material Interaction I</b>	<b>Chemistry/Biochemistry and Processing I</b>
13:30	RF SENSING ARRAY ON A ROBOTIC PLATFORM FOR NEURODEGENERATIVE DISEASE MONITORING Zhao , M.	EFFECT OF ABSORBED POWER AND TEMPERATURE NON-UNIFORMITY ON THE RAPID MICROWAVE SINTERING OF VARISTOR CERAMICS Rybakov K.	MICROWAVE-ASSISTED SYNTHESIS OF SOLID EPOXY RESINS: STUDY OF MOLECULAR WEIGHTS BY GPC AND MALDI-TOF/MS Bogdal D.
13:50	MICROWAVE ASSISTED POLYMERASE CHAIN REACTION AND PHENOMENON OF MICROWAVE DENATURATION OF DNA POLYMERASES Ohuchi, S.	ENHANCED MICROWAVE ABSORPTION IN GLASS BATCH THROUGH BATCH PRETREATMENT AND ALTERNATIVE RAW MATERIALS Behrend R.	TEMPERATURE INDUCED DIFFUSION -- A NEW MICROWAVE EFFECT? Robinson J.
14:10	NEW CLASS OF CHITOSAN-DERIVED HEMOSTATIC AGENTS OBTAINED UNDER MICROWAVE-ASSISTED CONDITIONS Radwan-Pragłowska, J.	COMPARATIVE STUDY OF MECHANICAL AND MICROSTRUCTURAL PROPERTIES OF LSM CERAMICS OBTAINED BY E-FIELD AND H-FIELD Penaranda-Foix F.	A MICROWAVE ATMOSPHERIC PLASMA STRATEGY FOR FAST AND EFFICIENT DEGRADATION OF AQUEOUS P-NITROPHENOL Zhao C.
14:30	<b>Short break</b>		

	COD ROOM	MACKEREL ROOM	HERRING ROOM
	<b>THz applications and future trends</b>	<b>Food processing and process intensification II</b>	<b>Energy and chemistry</b>
14:45	ADDITIVE FABRICATION OF HYDROXYAPATITE CERAMICS USING MILLIMETER-WAVE AND SUB-TERAHERTZ RADIATION Rybakov K.	INACTIVATION OF POD AND LOX ENZYMES IN YELLOW PEAS BY MICROWAVE PROCESSING Radoiu M.	MICROWAVE-ENHANCED PROCESS INTENSIFICATION FOR UTILIZATION OF STRANDED ENERGY RESOURCES Hu J.
15:05	FIELD ASSISTED PROCESSING OF NANOSTRUCTURED CERAMICS Vaidhyanathan B.	ULTRA-BROADBAND CHARACTERISATION SYSTEM OF DIELECTRIC PROPERTIES OF FOOD MATERIALS Hamilton J.	ATMOSPHERIC MICROWAVE PLASMA SOURCE AND DOWNSTREAM SOURCE: CHARACTERISTICS AND INDUSTRIAL APPLICATIONS Schneider J.
15:25			MICROWAVE-ENABLED FABRICATION OF A CATHODE MATERIAL FOR HIGH-TEMPERATURE NA-ION BATTERY Zhou Y.
15:45	<b>Poster session I + coffee break + exhibitors</b>		
	<b>MUEGGE Auditorium</b>		
16:45	<b>Round Table / panel discussion: Industrialization of microwave/RF processes: key success factors and bottlenecks</b>		
17:45	<b>Meet and greet.</b>		
18:45	<b>End of day 1</b>		

September 15 (Wednesday)

FLOUNDER Auditorium			
09:00	<b>Plenary III Graham Brodie: Use of microwaves in the agricultural sector - from heating to sensing applications</b>		
09:45	<b>Keynote II Andreas Fhager: Electromagnetic imaging methods for breast cancer detection, stroke detection and other biomedical microwave applications.</b>		
10:30	<b>EuMA presents Plenary IV</b>		
11:15	<b>Panel discussion in collaboration with EuMA: Microwave teaching and education.</b>		
12:15	<b>Long break + exhibition</b>		
	COD ROOM	MACKEREL ROOM	HERRING ROOM
	<b>Dielectric and Magnetic Material Properties and Measurements II</b>	<b>Medical and Biological Applications II</b>	<b>Other Microwave and HF Applications</b>
13:15	MATERIALS THERMAL PROPERTIES INVESTIGATION BY INVERSE MODELING TECHNIQUE Tao, J.	NOVEL MICROWAVE MEASUREMENT SYSTEM FOR DIRECT TUMOR DETECTION INSIDE A HUMAN BREAST Salomon, C.	MICROWAVE REGENERATION OF SPENT SULPHUROUS ACTIVATED CARBON Powell, C.
13:35	DIELECTRIC BEHAVIOUR OF METAL SULFIDES DURING MICROWAVE TREATMENT, Lopez-Buendia, A.	RADIO WAVE TREATMENT OF SOIL FOR PATHOGEN INACTIVATION, Sturm, G.	MICROWAVE ASSISTED METALLURGY - CASE STUDY ON MICROWAVE ROASTING OF STAINLESS STEEL SLAG Kaipia, L.
13:55	A WIDEBAND MICROWAVE INTERFEROMETRY SENSOR FOR MEASUREMENT MINUTE DIELECTRIC PROPERTY CHANGES OF CHEMICAL LIQUIDS IN MICROFLUIDIC CHANNELS Liu, W.	MICROWAVE-ASSISTED OBTAINMENT AND CHARACTERIZATION OF NOVEL BIOACTIVE SCAFFOLDS FOR BONE TISSUE REGENERATION Piatkowski, M.	INTERESTING PHENOMENA OF INFLUENCE OF NEARBY CONDUCTOR ON MICROWAVE PLASMA JET Yu, Y.
	<b>EM modelling and Numerical Techniques I</b>	<b>Chemistry/biochemistry and processing II</b>	<b>Industrial applications and Design of applicators</b>
14:15	MULTIPHYSICS MODELING OF THE THAWING AND TEMPERING PROCESS OF BEEF MEAT IN A SOLID-STATE BASED MICROWAVE CAVITY Santon, P.	EFFECT OF ISOPROPANOL CO-PRODUCT ON THE LONG-TERM STABILITY OF TiO <sub>2</sub> NANOPARTICLE SUSPENSIONS PRODUCED BY MICROWAVE-ASSISTED SYNTHESIS Leonelli, C.	INFLUENCE OF CAVITY SIZE AND MATERIAL PROPERTIES ON THE UNIFORMITY OF DIELECTRIC HEATING USING DISTRIBUTED SOURCES AND NOVEL SOLID-STATE MICROWAVE AMPLIFIERS Neumaier, D.
14:35	COMPUTATIONAL CHARACTERIZATION OF MICROWAVE-ENHANCED CVI PRODUCTION OF SiCf/SiC COMPOSITES Yakovlev, V.	MODELLING THE THERMAL RUNAWAY DURING THE STABILIZATION PHASE OF THE CARBON FIBER PRODUCTION USING MICROWAVE HEATING Hofele, J.	ASSESSMENT OF COAXIAL FILTERS FOR METALLIC MODE STIRRER INSTALLATION IN MULTIMODE MICROWAVE OVENS Monzó-Cabrera, J.
14:55	PRODUCTION OF CERAMIC PIGMENTS USING MICROWAVE HEATING - AN EFFICIENCY AND MODELLING PARAMETRIC STUDY Ramos, P.	GREEN HYDROGEN AND ACETYLENE CHEMISTRY RENAISSANCE ENABLED BY HIGHLY EFFICIENT CONVERSION OF HYDROCARBONS VIA MICROWAVE PLASMA REACTOR Ashcraft, N.	METAL BULK MELTING BY INTENSIFIED LOCAL MICROWAVE-HEATING AND ITS APPLICATION FOR IRON-REBAR CUTTING Shoshani, Y.
15:15	<b>Short break</b>		

	COD ROOM	MACKEREL ROOM	HERRING ROOM
	<b>Food processing and process intensification III</b>	<b>EM modelling and Dielectric and magnetic material properties and measurements</b>	
15:30	DIELECTRIC PROPERTIES OF TYPICAL SOLVENT EXTRACTION EMULSIONS Cerino, C.	THE INFLUENCE OF MICROWAVE FREQUENCY ON HEATING UNIFORMITY Tang, Z.	
15:50	AN EXPOSITION OF THE VARIOUS MECHANISMS IN HEATING OF MICROWAVE FOOD PRODUCTS AND IN MEDICAL APPLICATIONS Petrovic, N.	NEW APPLICATORS FOR THE PROJECT SIMPLIFY: SONICATION AND MICROWAVE PROCESSING OF MATERIAL FEEDSTOCK Colombini, E	
16:10	CONTINUOUS HEATING OF FOULING-SENSITIVE MILK PRODUCTS - MICROWAVE TECHNOLOGY AS NEW APPROACH? Graf, B.	CONTINUOUS AND ONLINE MONITORING OF CHEMICAL SYNTHESIS VIA DIELECTRIC SPECTROSCOPY G. Dimitrakis	
<b>Networking Foyer</b>			
16:30	<b>Meet and greet</b>		
17:15	<b>Entertainment</b>		
18:15	<b>End of day 2</b>		

September 16 (Thursday)

	COD ROOM	MACKEREL ROOM	HERRING ROOM
09:30	<b>Ampere 2021 final countdown</b>		
	<b>Biomass and waste processing I</b>	<b>Material interaction II</b>	
09:45	UNDERSTANDING MICROWAVE DEPOLYMERISATION OF SYNTHETIC POLYMERS Adam, M.	A COMPARATIVE ANALYSIS OF MICROWAVE-ASSISTED REGENERATION AGAINST CONVENTIONAL REGENERATION FOR POST-COMBUSTION CARBON CAPTURE Fernandez Martin, C.	
10:05	POSSIBILITY OF USING MICROWAVE ENERGY FOR STEELMAKING WASTES RECYCLING Omran, M	BUILD THE BRIDGE BETWEEN MICROWAVE AND POWDER MATERIALS Zhang, Y.	
10:25	MICROWAVE ASSISTED EXTRACTION OF PHENOLIC FROM CACAO POD HUSKS - AN ALTERNATIVE FOR VALORISATION Dewi, S. R.	MICROWAVE SINTERING OF BA-DOPED BIFEO3 NANOPOWDER: MICROSTRUCTURE AND MAGNETIC PROPERTIES EFFECTS Fernandez Perdomo, C.	
	<b>Biomass and waste processing II</b>	<b>Solid State technology</b>	
10:45	FAST PYROLYSIS OF LIGNOCELLULOSIC BIOMASS USING A FREQUENCY-AUTO-TRACKING SOLID-STATE MICROWAVE GENERATOR Tsubaki, S.	LARGE-SCALE SOLID-STATE GRID-OSCILLATOR POWER COMBINING FOR MICROWAVE HEATING CAVITIES Molles, J.	
11:05	MICROWAVE ASSISTED LEACHING APPROACHES TO RECOVER PLATINUM GROUP METALS FROM WASTE AND INTERMEDIATE STREAMS Spooren, J.	ON THE ENERGY EFFICIENCY OF CURING CARBON FIBER COMPOSITES WITH MICROWAVES GENERATED BY SOLID STATE POWER AMPLIFIERS Dancila, D.	
11:25	MICROWAVE AND CONVENTIONAL PYROLYSIS TO PRODUCE VALUABLE PRODUCTS FROM DIGESTATE Diaz Perez, N.	SOFTWARE-DRIVEN SOLID-STATE GENERATORS ARRAY Fiore, M.	
11:45	<b>Poster session II</b>		
12:45	<b>Long Break + exhibition</b>		
	COD ROOM	MACKEREL ROOM	HERRING ROOM
	<b>Chemistry/Biochemistry and Processing III</b>	<b>Biological Applications and Measurements</b>	
13:30	MICROWAVE CATALYTIC REACTION FOR SIMULTANEOUS ACTIVATION OF CH4 AND N2 Hu, J.	GROWTH AND SPORE FORMATION OF BACILLUS NATTO BY MICROWAVE ASSISTED CULTIVATION AT OPTIMUM TEMPERATURE AND THE EFFECT OF MICROWAVE POWER Ohuchi, S.	



13:50	APPLICATIONS OF DUAL MODE MICROWAVE RESONATORS IN ELECTRON PARAMAGNETIC RESONANCE (EPR) SPECTROSCOPY Folli, A.	MICROWAVE SURFACE RESISTANCE OF AS-GROWN AND POST- PROCESSED ADDITIVE MANUFACTURED METAL PARTS Batson, R	
14:10	INVESTIGATION OF MICROWAVE HEATING OF IRON-BASED CATALYSTS IN THE MAGNETIC FIELD Morgan, A.	A NEW ON-LINE MICROWAVE DIAGNOSE ATMOSPHERIC PRESSURE AIR PLASMA WITH ARTIFICIAL NEURAL NETWORK Chen, W.	
	<b>Plasma phenomena and processing</b>	<b>Other Microwave and HF Applications II</b>	
14:30	MICROWAVE PLASMA CONVERSION OF METHANE FOR HYDROGEN PRODUCTION Radoiu, M.	A NOVEL METHOD FOR OPTIMIZING THE WORKING PARAMETERS OF AR+N2 MICROWAVE LIGHT EMITTING PLASMA BASED ON NEURAL NETWORK Zhong, Y	
14:50	INFLUENCE OF MICROWAVE FREQUENCY AND GAS HUMIDITY ON THE VITRO BLOOD COAGULATION WITH A COLD ATMOSPHERIC PRESSURE PLASMA Wu, L.	IMPROVED CONTROL ON THE MICROWAVE DEVULCANIZING OF GROUND TIRE RUBBER BY MEANS OF SULPHUR GAS SENSORS Perez-Campos, R.	
15:10	LARGE SCALE/HIGH DENSITY PLASMA SURFACES GENERATED BY DISTRIBUTED ELEMENTARY PLASMA SOURCES POWERED BY SOLID STATE MICROWAVE GENERATORS Zoubian, F.	DEVELOPMENT OF AN EPR CAVITY RESONATOR WITH HEATING CAPABILITES Harari, J	
15:30	<b>Short break</b>		
<b>FLOUNDER Auditorium</b>			
15:45	<b>Frequency allocation for Heating or for Communication? Panel discussion with moderator Lennart Lundgren</b>		
16:45	<b>Ampere OGA</b>		
17:15	<b>Closing ceremony</b>		
18:00	<b>End of conference</b>		