Biography

**Prof. Jiasheng Hong** received the D.Phil. degree in engineering science from the University of Oxford, Oxford, U.K., in 1994. His doctoral dissertation concerned EM theory and applications. In 1994, he joined the University of Birmingham, Birmingham, U.K., where he was involved with microwave applications of high-temperature superconductors, EM modelling, and circuit optimization. In 2001, he joined the Department of Electrical, Electronic and Computer Engineering, Heriot-Watt University, Edinburgh, U.K., and is currently a Professor leading a team for research into advanced RF/microwave device technologies. He has authored and coauthored over 200 journal and conference papers in this field, and has published four relevant books – *Microstrip Filters for RF/Microwave Applications* (Wiley, 1st ed., 2001, 2nd ed., 2011), *RF and Microwave Coupled-Line Circuits* (Artech House, 2nd ed., 2007), *Balanced Microwave Filters* (Wiley, 2018), and *Advances in Planar Filters Design* (The Institution of Engineering and Technology (IET), 2019). His current interests involve RF/microwave devices, such as antennas and filters, for wireless communications and radar systems, as well as novel material and device technologies including multilayer circuit technologies using package materials such as LCP and LTCC, Additive manufacturing or 3D printing device technologies, RF MEMS, ferroelectric and high-temperature superconducting devices.

**Professor Hong** is a Fellow of IEEE, a member of the IEEE MTT Technical Committees of Filters and Passive Components and Microwave Superconductivity, the Subject Editor (Microwave) for Electronics Letters, an Associate Editor of IET Microwaves, Antennas & Propagation and International Journal of RF and Microwave Computer Aided Engineering. He was also a past Associate Editor of IEEE Transactions on Microwave Theory and Techniques.

Research outputs

**Development of an Unbalanced-to-Balanced Filtering Power Divider With Sequential Rotation Phase Characteristic**

**Investigation of Metal 3-D Printed High-Q Multiband Waveguide Filters Using Spherical Resonators**

**A Wideband 90° Phase Shifting Element Applied in Quadrature Phase Filtering Power Divider**

**Design of Wide-Stopband and Dual-Band Filtering Crossovers Based on Mixed Substrate Integrated Waveguide Cavities**

**Analysis of the Compact Graded Dumbbell Coaxial Resonator With Its Filter Design Applications**

**3-D Printed Filtering Rat-Race Couplers Using Hemispherical Cavity Resonator**

**3D metal printed slot antenna array with high gain and enhanced bandwidth using triple-mode sine corrugated cavity resonator**
Quasi-Elliptic Lossy Filter With Reconfigurable Bandwidth

A versatile 3-D printable model for implementing multiband waveguide filters with flexible filtering characteristics

Multiport Beamforming System Based on Reconfigurable Waveguide Phased Antenna Array For Satellite Communication Applications

Technological Investigation of Metal 3D Printed Microwave Cavity Filters Based on Different Topologies and Materials

K/Ka-Band MIMO Beamforming Phased Antenna Array with Multi-layer Substrate Integrated Coaxial Line Feeding Network
Wei, Y., Arnold, C. & Hong, J., 18 Jul 2022, 2022 Microwave Mediterranean Symposium (MMS). IEEE

A K/Ka-Band Reconfigurable Substrate Integrated Coaxial Line to Waveguide Transition Technology

Reconfigurable Wideband Linear-Polarized and Dual Left/Right-Hand Circularly-Polarized Waveguide Antennas for Beamforming Antenna array

Compact bandwidth tunable IF filters for reconfigurable converters

Inline Quasi-Elliptic Bandpass Filter Based on Metal 3-D Printing Technology

On the Development of Metal 3D Printed Bandpass Filter With Wide Stopband Based on Deformed Elliptical Cavity Resonator With an Additional Plate

Compact 3D Metal Printed Filtering Antenna

3-D Metal Printed Compact High-Q Folded Waveguide Filter with Folded Antenna

3D metal printed corrugated waveguide antenna array with high gain and enhanced bandwidth

Two- and Three-Way Filtering Power Dividers With Harmonic Suppression Using Triangle Patch Resonator
3-D Printed Dual-Band Filter Based on Spherical Dual-Mode Cavity

Mode selective bandpass filter with high selectivity based on thirty-second-mode circular SIW resonator

3-D Metal Printed Inline Quasi-Elliptic Bandpass Filter

3-D Metal Printed High-Q Folded Waveguide Filter with Folded Antenna

A K/Ka-Band Substrate Integrated Coaxial Line Power Divider for 4-input and 16-output Beamforming Multi-Layer Feeding Network

Two miniaturized triple-band filters based on 90° sector substrate integrated waveguide

Design of Compact Circularly Polarized Antenna Using Sunshine-Shaped Slotted Patch

Tri-band filtering power divider based on multi-mode fork-type resonator for performance enhancement

A High-Selectivity D-Band Mixed-Mode Filter Based on the Coupled Overmode Cavities

Wideband Differential-Mode Bandpass Filters With Stopband and Common-Mode Suppression

A 140 GHz High Efficiency Slotted Waveguide Antenna using a Low Loss Feeding Network

C-Band Microstrip Lossy Filter using Resistive-loaded Closed-Loop Resonators

Self-packaged balanced bandpass filters with impedance transformation characteristic

Wideband Four-Way Filtering Power Divider With Sharp Selectivity and High Isolation Using Coehared Multi-Mode Rasonators
Self-Packaged Ultra-Wideband Balanced Bandpass Filter Using Multilayer Liquid Crystal Polymer Circuit Technology

Analysis and Design of a New Self-Packaged Wideband Balun Bandpass Filter With the Functionality of Impedance Transformation

UWB Balanced BPF Using a Low-Cost LCP Bonded Multilayer PCB Technology

Fully Embedded Ultra-Wideband Multilayer Balun into Organic Packaging Substrate

LCP Ultra-Wideband Self-Packaged Microstrip to Stripline Transition with Multilayer Balun Demonstration

Millimetre wave SIW diplexer with relaxed fabrication tolerances

Advances in Planar Filters Design

A Simple and Accurate Method for Extracting Super Wideband Electrical Properties of the Printed Circuit Board

Microstrip extracted-pole lossy filters

A New Balanced-to-Unbalanced Filtering Power Divider With Dual Controllable Passbands and Enhanced In-Band Common-Mode Suppression

Lossy Dual-Mode Bandpass Filter with Non-Uniform Q Method

Varactor-Tuned Dual-Mode Bandpass Filter With Nonuniform Q Distribution

Cascaded suspended substrate stripline bandpass filter

Compact Microstrip IF Lossy Filter With Ultra-Wide Stopband
Design of Out-of-Phase Filtering Power Divider Based on Slotline and Microstrip Resonator

A Design Method of Multimode Multiband Bandpass Filters

Computer-aided design of microstrip extracted-pole lossy filter

Coupling Matrix Compression Technique for High-Isolation Dual-Mode Dual-Band Filters

A Novel Dual-Band Controllable Bandpass Filter Based on Fan-Shaped Substrate Integrated Waveguide

Tunable Narrow Bandwidth of a Bandpass Filter combined Microstrip and Suspended substrate stripline

A Novel Triple-Band Bandpass Filter Based on Equilateral Triangle Substrate Integrated Waveguide

Compact differential bandpass filter using onesixth mode and novel onethird mode triangular SIW resonators

A High-Performance Dual-Mode Filtering Power Divider with Simple Layout

Balanced Microwave Filters

Dual-Wideband Filtering Power Divider With Good Isolation and High Selectivity

Design of Dual-Mode Dual-Band Superconducting Filters

Wideband balun bandpass filter with broadside-coupled microstrip/slotline resonator structure

Novel compact single-band and dual-band bandpass filter based on one-third-mode substrate integrated waveguide
Millimetre wave SIW diplexer circuits with relaxed fabrication tolerances

Novel lossy microstrip filter with extracted-pole technique

Novel miniature slow-wave resonator filter using multilayer LCP circuit technology

Ultrawideband (UWB) Planar Antenna with Single-, Dual-, and Triple-Band Notched Characteristic Based on Electric Ring Resonator

Sinuoua antenna with dual linear polarization and a notch characteristic

Millimetre wave wideband low-loss waveguide-to-substrate integrated waveguide transition

Ultra-wideband antenna with single- and dual-band notched characteristics based on electric ring resonator

Microstrip/Coplanar Waveguide Hybrid Bandpass Filter With Electromagnetic Coupling

Conductor-Backed CPW Bandpass Filters with Electromagnetic Couplings

Compact Integrated Lumped Element LCP Filter

High Rejection, Self-Packaged Low-Pass Filter Using Multilayer Liquid Crystal Polymer Technology

Design of a compact dual-band folded-waveguide bandpass filter using multi-layer waveguide resonators

Design of millimeter wave substrate integrated waveguide diplexers

Common-mode suppression for balanced bandpass filters in multilayer liquid crystal polymer technology
Design methods of multi-band filters

Miniature microwave filters using multilayer technologies

Recent advances in microwave planar filter technology

Design of millimetre wave diplexers with relaxed fabrication tolerances

Cavity-backed dual linear polarization sinuous antenna with integrated microstrip balun feed

Combined microstrip and suspended substrate stripline combline bandpass filter with two transmission zeros
Alaqil, H. & Hong, J-S., 2015, *2015 IEEE 15th Mediterranean Microwave Symposium (MMS)*. IEEE, 7375432

Design of microstrip tri-mode balun bandpass filter with high selectivity

Developing compact wideband filters using multilayer liquid crystal polymer technology

DC isolated directional coupler

Tolerance considerations for wireless backhaul diplexer circuits

Compact self-packaged dual-band filter using multilayer liquid crystal polymer technology

Design of microstrip lossy filter using an extended doublet topology

Varactor-tuned microstrip bandpass filters with different passband characteristics

Network oriented approaches for modeling and designing microwave planar filtering structures

On the development of compact lumped-element LCP filters
A novel compact Ultra-Wideband bandpass filter

The design of miniature multilayer bandpass filters with mixed couplings

Compact varactor-tuned microstrip high-pass filter with a quasi-elliptic function response

A compact bandpass filter based on right- and left-handed transmission line sections

Compact continuously tunable microstrip low-pass filter

Development of packaged UWB passive devices using LCP multilayer circuit technology

Channel-reconfigurable filter with integrated switch in multilayer LCP package

Compact wideband combline filter using LCP bonded multilayer PCB technology

Development of packaged UWB passive devices using LCP multilayer circuit technology

Development of packaged UWB passive devices using LCP multilayer circuit technology
Cervera, F., Hong, J. & Thomson, N., 11 Feb 2013, 42nd European Microwave Conference 2012. IEEE, 6459377

Recent development of compact microwave filtering structures based on multilayer LCP technology

A compact dual-passband filter using multilayer structure

A compact multilayer liquid crystal polymer VHF bandpass filter

Dual-band differential filter using broadband common-mode rejection artificial transmission line

Varactor-tuned dual-mode frequency discriminator for instantaneous frequency measurements
A novel microstrip parallel-coupled line structure for ultrawideband microwave filters

Miniature Quasi-Lumped-Element Wideband Bandpass Filter at 0.5–2-GHz Band Using Multilayer Liquid Crystal Polymer Technology

Electronically reconfigurable multi-channel wideband bandpass filter with bandwidth and centre frequency control

Cascaded Coupled Line Filter With Reconfigurable Bandwidths Using LCP Multilayer Circuit Technology

Reconfigurable microstrip combline filter with tunable center frequency and bandwidth

An investigation of performance enhancement for tunable microstrip filter

Design and fabrication of a miniature highpass filter using multilayer LCP technology

Differential transmission line for common-mode suppression using double side MIC technology

Parallel feed microstrip quasi-elliptic function bandpass filter

High selectivity UWB bandpass filter using dual-mode resonators

Reconfigurable cascaded coupled line filter with four distinct bandwidth states

Multilayer interdigital ultra-wideband filter

Reconfigurable lowpass filter based on signal interference techniques

Highly selective ultra wideband bandpass filters with quasi-elliptic function response

Quality factor of E-plane periodically loaded waveguide resonators and filter applications

Microstrip Filters for RF/Microwave Applications
Recent progress in planar microwave filter technology

Wideband bandpass filter with multiple reconfigurable bandwidth states

Coupled stepped-impedance-resonator bandstop filter

Varactor-tuned dual-mode bandpass filters

Ultrawideband filter technologies

Quasi-elliptic UWB bandpass filter using multilayer liquid crystal polymer technology

UWB bandpass filter using cascaded miniature high-pass and low-pass filters with multilayer liquid crystal polymer technology

Dual-band UWB filter using multilayer liquid crystal polymer technology

Wideband bandpass filter with reconfigurable bandwidth

Dual-wideband bandpass filter for ultra wideband applications

Microstrip quasi-elliptic function bandpass filter with improved tuning range

UWB bandpass filter with switchable notching band using multilayer LCP technology

Ultra-wideband bandpass filter with multiple notch bands using nonuniform periodical slotted ground structure

Lead-strontium-titanate varactor-tuned CPW bandstop filter on liquid crystal polymer substrates
Tunable microstrip quasi-elliptic function bandpass filters

Quasi-elliptic function doublet filters without cross coupling

Reconfigurable planar filters
Hong, J-S., Oct 2009, In: IEEE Microwave Magazine. 10, 6

Compact uwb filter with double notch-bands using multilayer LCP technology

Dual-band filter based on non-degenerate dual-mode slow-wave open-loop resonators

Microstrip cross-coupled stepped-impedance line bandstop filter

UWB bandpass filter with a multilayer non-uniform periodical structure on LCP substrates

Miniature coupled resonator UWB filter using a multilayer structure on liquid crystal polymer

UWB bandpass filter with tunable notch on liquid crystal polymer substrate
Arachchige, H. R., Hong, J-S. & Hao, Z-C., 26 May 2009, 2008 Asia-Pacific Microwave Conference. IEEE, 4957945

Compact wide stopband ultra wideband bandpass filter using multilayer liquid crystal polymer technology

An Electronically Tuned Bandstop Filter Using BST Varactors

A novel ultra wideband bandpass filter using broadside coupled structures on multilayer organic liquid crystal polymer substrate

Compact tunable microstrip bandpass filters with asymmetrical frequency response

E-plane filters with selectively located transmission zeros

High Selective Ultra-Wideband (UWB) Bandpass Filter with Wideband Harmonic Suppression
Substrate Integrated Folded-Waveguide Filter with Asymmetrical Frequency Response

Tunable bandstop resonator and filter on Sisubstrate with PST thin film by sol-gel deposition

Ultra-wideband (UWB) Microstrip Bandpass Filter with Narrow Notched Band

Recent development of ultra-wideband (UWB) bandpass filters using distributed stub transmission line structures

Tunable slotted ground structured bandstop filter with BST varactors

Ultra-wideband bandpass filter with multiple notch-bands on multilayer liquid crystal polymer substrate

BST varactor tuned bandstop filter with slotted ground structure

Multilayer folded-waveguide dual-band filter

Switchable embedded notch structure for UWB bandpass filter

Ultra wideband bandpass filter using embedded stepped impedance resonators on multilayer liquid crystal polymer substrate

Ultra-wideband bandpass filter using multilayer liquid-crystal-polymer technology

Electronically reconfigurable dual-mode microstrip open-loop resonator filter

Novel substrate integrated folded waveguide filter

BST-varactor tunable dual-mode filter using variable ZC transmission line
Novel folded waveguide resonator filter using slot technique

Electromagnetic design of folded-waveguide resonator filter with single finite-frequency transmission zero

An electronically tuned bandstop filter using BST varactors

Compact ultra-wideband bandpass filter using broadside coupled hairpin structures on multilayer liquid crystal polymer substrate

On the development of tunable microwave devices for frequency agile applications

Recent progress in miniature microwave filters

Input and Output Cross-Coupled Wideband Bandpass Filter

Dual-mode microstrip open-loop resonators and filters

Wideband bandstop filter with cross-coupling

Asymmetric parallel-coupled lines for notch implementation in UWB filters

Compact ultra-wideband microstrip/coplanar waveguide bandpass filter

Ultra-wideband (UWB) bandpass filter with embedded band notch structures

A novel ultra-wideband (UWB) bandpass filter (BPF) with pairs of transmission zeroes

Decomposition approach for computer-aided synthesis of high-order cross-coupled resonator filters
Design of miniature wideband interdigital filters

A compact ultra-wideband (UWB) bandpass filter with transmission zero

Compact wideband bandpass filter with high performance and harmonic suppression

Folded-waveguide resonator filter with asymmetric frequency response

High directivity directional coupler using metamaterial

Compact wide-band branch-line hybrids

An optimum Ultra-Wideband (UWB) bandpass filter with spurious response suppression

Control of stress in multilayered MEMS devices

Eighteen-pole superconducting CQ filter for future wireless applications
Frequency agile microwave devices using variable characteristic impedance transmission lines

Modeling of an ultra-wideband bandpass filtering structure

Recent development of ultra-wideband (UWB) filters

Variable Z₀ transmission line and its application to an impedance transformer

2 × 2 RF MEMS switch matrix

An optimum ultra-wideband microstrip filter

A novel tunable transmission line and its application to a phase shifter

Characterization and applications of a compact CPW defected ground structure

A general circuit model for defected ground structures in planar transmission lines

A high-temperature superconducting filter for future mobile telecommunication systems

Challenge: and progress in high power mems switches for reconfigurable RF front-ends

Design of a compact broadband branch-line hybrid

Electromechanical modeling of high power RFMEMS switches with ohmic contact

Electromechanical modelling of high power RF-MEMS switches with ohmic contact
Folded-waveguide resonator filters

High-order superconducting filter with group delay equalization

Microstrip dual-mode band reject filter

Practical approach for designing miniature interdigital filters

Variable Zc transmission line and its application to a tunable impedance transformer

Narrowband high temperature superconducting filter for mobile communication systems

Theory and experiment of dual-mode microstrip triangular patch resonators and filters

A high temperature superconducting filter for future mobile telecommunication systems

Compact folded-waveguide resonators

Development of high power RF mems switches

Narrow-band HTS filter on sapphire substrate

Superconducting filters for wireless communication applications

Coplanar waveguide periodic structures with resonant elements and their application in microwave filters

Dual-mode microstrip triangular patch resonators and filters

HTS filter and front-end subsystem for GSM1800 wireless base station
A demonstration HTS base station sub-system for mobile communications

A Demonstration HTS Station Sub-System for mobile Communications

Recent Progress in Planar Microwave Filters

Computer-Aided Synthesis of Mixed Cascaded Quadruplet and Trisection (CQT) Filters
Hong, J. S., 2001, p. 5-8. 4 p.

Microstrip Filters for RF/Microwave Applications

Couplings of asynchronously tuned coupled microwave resonators

A high-temperature superconducting duplexer for cellular base-station applications

Design of highly selective microstrip bandpass filters with a single pair of attenuation poles at finite frequencies

On the performance of HTS microstrip quasi-elliptic function filters for mobile communications application

5-Pole high-temperature superconducting band-pass filter at 12 GHz using high power TM_{010} mode of microstrip circular patch

Microstrip triangular patch resonator filters

Superconducting quasi-elliptic function filter on R-plane sapphire substrate

Transmission line filters with advanced filtering characteristics

Aperture-coupled microstrip open-loop resonators and their applications to the design of novel microstrip bandpass filters

On the development of superconducting microstrip filters for mobile communications applications
An HTS transceiver for third generation mobile communications

Thin film hts passive microwave components for advanced communication systems

Coplanar interdigital delay line theory and measurement

Microstrip cross-coupled trisection bandpass filters with asymmetric frequency characteristics

Back-to-back microstrip open-loop resonator filters with aperture couplings

Coplanar power splitter design and measurement

Cross-coupled HTS microstrip open-loop resonator filter on LAO substrate

Thin-film HTS planar antennas

Cross-Coupled Microstrip Hairpin-Resonator Filters

8-pole superconducting quasi-elliptic function filter for mobile communications application

Highly selective microstrip bandpass filters for HTS and other applications

Superconducting air interface for mobile communications base stations

Superconducting microstrip filter for DCS1800 base station

Superconducting passive microwave components for mobile communications
Theory and experiment of novel microstrip slow-wave open-loop resonator filters

Investigation of microstrip pseudo-interdigital bandpass filters using a full-wave electromagnetic simulator

Experimental investigation of aperture-coupled four-element microstrip H-shaped antenna for multi-function operations

Microstrip filters using new small resonant components

Microstrip slow-wave open-loop resonator filters

Recent advances in microstrip filters for communications and other applications

Couplings of microstrip square open-loop resonators for cross-coupled planar microwave filters

End-coupled microstrip slow-wave resonator filter

Miniature superconducting filters

Novel slow-wave ladder microstrip line filters

Compact microwave elliptic function filter using novel microstrip meander open-loop resonators

Coplanar strips interdigital delay line for instantaneous frequency measurement systems

Microstrip H-shaped antenna aperture-coupled to a microstrip feedline

Realisation of quasielliptic function filter using dual-mode microstrip square loop resonators

Canonical microstrip filter using square open-loop resonators
Microstrip bandpass filter using degenerate modes of a novel meander loop resonator

Development of new microstrip pseudo-interdigital bandpass filters

A novel microwave periodic structure — the ladder microstrip line

Bandpass characteristics of new dual-mode microstrip square loop resonator

Edge-Coupled Microstrip Loop Resonators with Capacitive Loading

Capacitively loaded microstrip loop resonator

Frequency-dependent analysis of finline mixed-type offset junctions

Design of E-plane filters made easy

Rigorous Analysis of Printed Windows in Rectangular Waveguides

Exact Computation of Generalised Scattering Matrix of Suspended Microstrip Step Discontinuity

Modelling microstrip step discontinuities by the transmission matrix

Computer-aided design of millimeter-wave fin-line bandpass filters

Frequency doubler for millimeter-wave applications

Cad of Ka-Band Fin-Line Filters

Computer Aided Design of Microwave Bandpass Filters