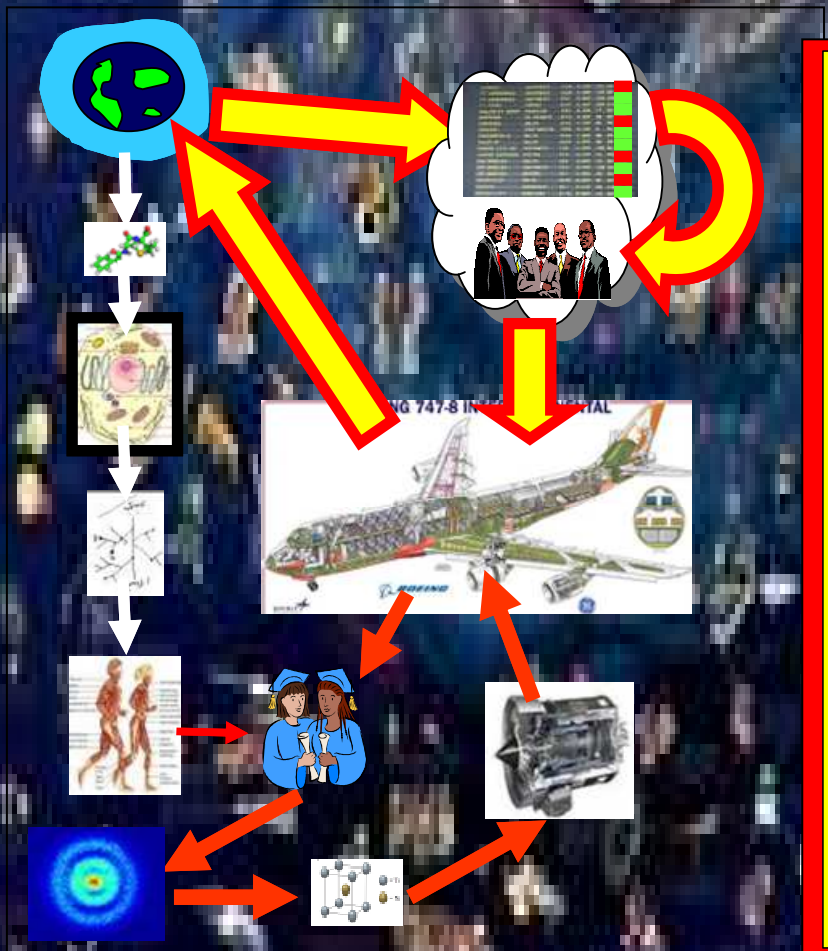
8th World Congress
of
MIRCE Science

Woodbury Park, Exeter, United Kingdom, 26 – 28 June, 2019



Physical Scale of MIRCE Science

Solar System	10000000000	
	1000000000	
	100000000	
	10000000	
	1000000	
	100000	
	10000	
	1000	
	100	
	10	
	1	metre
	0.1	
	0.01	
	0.001	
	0.0001	
	0.00001	
	0.000001	
	0.0000001	
	0.00000001	
	0.000000001	
Atomic System	0.0000000001	

The Congress Programme: Wednesday 26 June 2019	
0830- 0900	**Registration and welcome coffee, Woodbury Park Hotel,**
0900-0905	**Welcome by Dr Knezevic, Founder & President of the MIRCE Akademy**
0900 -1300 **Coffee Break 10.30-11.00**	**MIRCE Science Philosophy** **Dr J. Knezevic, MIRCE Akademy, Exeter, UK** *The philosophy of MIRCE Science is based on premises that the **"purpose of existence"** of any functionable system is to do a work, which is considered done when expected functionality (function and performance) is delivered through in-service time. This, life long, process is associated with the demand for resources, such as: personnel, material, faculties, energy and so forth. Monetary value of resources consumed constitutes positive functionability cost. Complementary work done, named negative functionability work, is associated with positive functionability actions, performed by humans while a system is being in negative functionability state. Monetary value of resources consumed, like personnel, spare parts, material, tools, equipment, faculties, data, energy and so forth, constitutes negative functionability cost.* *Consequently, the main objective of any user is to obtain a system which will deliver the best functionability performance, which means the highest possible ratio between the positive functionability work done and the total functionability cost, over its life. Clearly, this information becomes known, well after the retirement of a system. However, this ratio is predetermined by the future consequences of decisions made during the creation of a system. Hence, MIRCE Science is a theory, devoted by Dr Knezevic, that enables accurate predictions of functionability performance of the future systems to be made, as the time when all changes are possible, at very little extra time and cost. During this presentation the author will discuss the 50 year journey that he travelled while developing MIRCE Science.*
1300 -1400	**Lunch**
14.00-17.30 **Tea Break 15.15-15.45**	**An overview of Axioms, Equations and Methods of MIRCE Science** **Dr J. Knezevic, MIRCE Akademy, Exeter, UK** The theoretical body of knowledge that constitutes MIRCE Science, consists of the following major parts: • 6 Axioms • 2 Functionability: States, Events and Actions • 1 Functionability Field • 1 MIRCE Space • 5 Functionability Equations During this presentation, Dr Knezevic will explain the meaning of the above listed terms and concepts, and will illustrate each of them with numerous real life examples, covering systems like: Formula 1 cars, commercial/military aircraft, nuclear power stations, international space station, etc.
1900-2200	**Traditional English Fish & Chips in the Traditional English Pub** XVII Century English Pub, Topsham (5 miles from Woodbury Park, transport provided)

The Origin of MIRCE Science

Jezdimir Knezevic

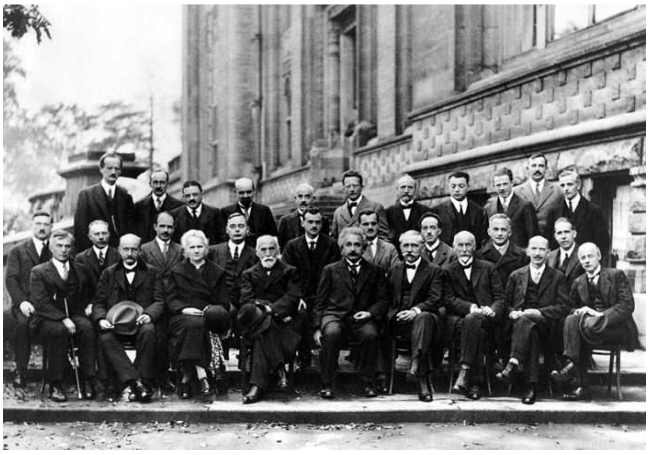
This book is about the journey over the road that the author has travelled since birth till today, but it is not a book about him; it is a book about the quest for the new body of knowledge that he named MIRCE Science. This journey consisted of two paths:

- Childhood obsession with cars and autosport, progressing to building one by hand, using parts obtained from scrap yards, in a neighbour's garden. Two years later driving that car he earned one point in the Yugoslav Rally Championship, while experiencing the physical reality of operation, maintenance and support processes.
- The second took the author to universities, libraries, institutes, companies and other organisations worldwide, in the quest for relevant knowledge of science and mathematics, the complexity of which, according to Jack Hessburg (1934-2013), the World's first Chief Mechanic (Boeing 777), required the intellectual effort equal to winning a Nobel Prize!

Both paths converged 40 years later to form MIRCE Science, the theory for predicting functionability performance of functionable system types by applying Functionability, Operability, Maintainability, Supportability and Profitability Equations, the mathematical derivation of which has been described in this book.

The Congress Programme: Thursday 27th June 2019

08.30-09.00	**Registration and welcome coffee, Woodbury Park Hotel**
09.00-13.00 **Coffee Break 10.30-11.00**	**MIRCE Science Mechanics** **Atoms and Molecules in MIRCE Mechanics** **Dr J. Knezevic, MIRCE Akademy, Exeter, UK** *MIRCE Mechanics is a part of MIRCE Science that systematically studies the mechanisms that cause transitions between functionability states of functionable systems, like re applied to understand phenomena that cause thermal aging, thermal buckling, photo-chemical degradation, reduction in dielectric strength, evaporation, metal fatigue, actinic degradation, photo-oxidation, swelling/ shrinking, degradation of optical qualities, fogging, photochemical decomposition of paint, blistering, warping, thermal stress, breakdown of lubrication film, increased structural loads, shift in the centre of gravity, jammed control surfaces, attenuation of energy, clutter echoes, blocking of air intakes, decreased lift and increased drag, unequal loading, removal of coating protection, pitting, roughening of the surface, acid reactions, leakage currents, promotion of mould growth, reduction of heat transfer, caking and drying, premature cracking, hot spots creation, erosion, bleaching preservatives, abrasive wear, corrosion, alkaline reactions and similar.* ***Thus, presentation focuses on the fundamental properties and relationships of atoms and molecules, as a prerequisite for the scientific understanding of physical processes that are responsible for the occurrence of positive and negative failure events during the life of a system.***
13.00-14.00	**Lunch Break**
14.00-17.00 **Coffee Break 15.15-15.45**	**Space Weather in MIRCE Mechanics** **Dr J. Knezevic, MIRCE Akademy, Exeter, UK** Terrestrial weather, manifested through physical phenomena like wind, snow, rain, hail, thunder, lightening has significant terrestrial impacts on the functionability[1] of maintainable systems. Physical causes of these metrological phenomena are reasonably well understood and included in reliability analysis of majority of engineering systems. **Space weather**, manifested through physical phenomena like evolving ambient plasma, magnetic fields, radiation, charged particle flows in space, has significant impact on the functionability of maintainable systems. The effects of space weather, although unfelt by human senses, are observed in the interruption or degradation of functionality and performance of space related systems during their lifetimes. In addition, increased radiation due to pace weather may lead to increased health risks for astronauts participating in manned space missions. The aviation sector may also experience damage to aircraft electronics and slightly increased radiation doses at aircraft altitude during large space weather events.
19.00-22.30	**Sherry Reception** **Gala Dinner – 8th Congress of MIRCE Science** **The MIRCE Akademy Fellowship Awards Ceremony**



The Congress Programme: Friday 28th June 2019

08.30-09.00	**Registration and welcome coffee, Woodbury Park Hotel**
09.00-10.30	**MIRCE Science Mathematics** **Calculation of the probability of a functionable system successfully completing the next active period, far beyond the first failure** John Thompson, Science Fellow of the MIRCE Akademy, Exeter, UK This presentation will present the methods used to model the positive and negative functionability states of a system, driven by the internal states of consisting components, based on the system truth table. The model is event simulation of on occurrence of any positive and negative functionability events of system (failures or repairs), far beyond the first failure of a system. The author has used event simulation because the mathematics needed to compute these results are extremely difficult, due to many convoluted integrals. However, the current computing power available in most desk top computers the modelling is available to all. Also, with event simulation it is very easy to change input parameters and plot the results through time and see the upper and lower limits of the parameter that define the functionability performance of a system type.
10.30-11.00	**Coffee Break**
11.00-13.00	**Predicting Maintenance Actions Errors: No Fault found and False Passes** John Thompson, Science Fellow of the MIRCE Akademy, Exeter, UK Current availability modelling assumes engineers are 100% efficient at detecting and correcting a fault. The author will introduce a new model of the outcomes of a maintenance action with error terms, such as: **no fault founds and false passes**. The author has achieved this by combing the system event simulation with the new model for maintenance action outcomes. Results suggest that period between maintenance actions effects the number of failures found. The equation to model this phenomenon will be introduced by the author. This equation allows for the correct calculation of the underlying statistics of functionability performance measures, based on the observed data, like: maintenance period, total time and number of failures found.
13.00-14.00	**Lunch Break**
14.00-15.30	**Open Discussion on the impact of the New Technologies on MIRCE Science:** • ***Computational Methods*** • ***Data Management Tools*** • ***Condition Monitoring Techniques*** • ***Environmental Conditions Predictions (Earth and Space Weather)*** • ***Human Errors Reduction Methods*** • ***Mathematical Techniques*** • ***Quantum Mechanics Understandings of Functionability Phenomena*** • ***Communication Systems*** • ***Documentation and Implementation of Lessons Learned***
15.30-1600	**2019 Group Photograph** **Tea and Departure**

"The main objective of the Congress is to bring together scientists, mathematicians, engineers, operators, maintainers, logisticians, programmers, economists and other experts to spend a few days together and learn the complexity of the process govern by the MIRCE Science Equations and to identify the consequences of their specialist decisions on the future performance of maintainable systems.

I am looking forward to welcoming you to the MIRCE Akademy, during this unique global event, as a paper presenter, master class presenter, exhibitor, sponsor or participant." Dr J. Knezevic. Founder & President

Administrative and Financial Information

For the planning purpose, of the participants, exhibitors and presenters, the following Price structure will be applied regarding all services related to the 8th World Congress of MIRCE Science.

Service Available	Cost		
All prices are in GB Pounds	Price	VAT	**Total**
Participant for 3 Days	595.00	119.00	**714.00**
Participant per Day	225.00	45.00	**270.00**
Presenter on the day of presentation	**Free**		
Presenter for 3 Days	300.00	60.00	**360.00**
Retired participants for 3 Days	195.00	39.00	**234.00**
University students for 3 Days	395.00	79.00	**474.00**
Congress Proceedings on CD	175.00	35.00	**210.00**
MIRCE Akademy Members	550.00	110.00	**660.00**
MIRCE Akademy Fellows	575.00	115.00	**690.00**
MIRCE Akademy Students	495.00	99.00	**594.00**
Partners Programme for 3 Days	195.00	39.00	**234.00**
Congress Dinner only Sherry, 3 course meal & wine	62.50	12.50	**75.00**
Exhibitors - Gold Package	5000.00	1000.00	**6000.00**
Exhibitors - Silver Package	3000.00	600.00	**3600.00**
Exhibitors - Bronze Package	1500.00	300.00	**1800.00**
B&B at Woodbury Park Hotel - single	**Rooms are**		**75.00**
B&B at Woodbury Park Hotel - double	**guaranteed**		**95.00**

VALUE ADDED TAX (VAT):

Unless special exemption exists, under UK Customs and Excise regulations delegates from all countries are required to pay UK VAT @ 20% on all courses taking place in the UK. Non-UK delegates may be able to recover VAT incurred via the relevant tax authority in the country of origin of the delegate.

Terms and Conditions

Substitution of participants may be made at any time. If you intend to do this, please advise the MIRCE Akademy ('the organiser') as soon as possible. Cancellation of a booking must be received in writing by the organiser at least 14 days before the commencement of the Congress. The MIRCE Akademy regrets that no refunds or credits will be made after the deadline unless the organiser cancels the Congress. The organiser reserves the right to alter the programme or cancel the Congress at its discretion. All places offered are subject to availability.

For any other information please contact us:

Phone; + 44 (0)1395 233 856
Email: quest@mirceakademy.com
Website: www.mirceakademy.com

About the Venue

Woodbury Park is a magnificent 500 acre complex set among rolling hills above the South West English coastline, only a few miles from Exeter.

Communication between Exeter and other parts of the United Kingdom are excellent. **By road**, the M5 motorway links Exeter to London, the Midlands, Scotland and Wales. Regular rapid coaches run services to and from London and Heathrow Airport. **By rail**, a regular fast service is available to and from Exeter (St David's Station) and London (Paddington Station). **By air**, Exeter Airport offers regular flights to many British and Continental destinations and is situated near to Woodbury Park.

Travel between Exeter and Woodbury normally requires a car or taxi.

Among the outstanding leisure facilities at Woodbury Park are two golf courses including the magnificent **Oaks Championship course**, tennis courts, a swimming pool, spa, sauna and fully equipped gymnasium and well appointed lounge areas and bars.

Woodbury Park, Exeter, EX5 1JJ , UK
☏ **+44 (0) 1395 233 382**
🖷 **+44 (0) 1395 233 384**
💻 **enquiries@woodburypark.co.uk**
💻 **www.woodburypark.co.uk**

Exeter is the most southwesterly Roman fortified settlement in Britain. Exeter Cathedral was founded in the early 12th century and has several notable features, including an early set of misericord, an astronomical clock and the longest uninterrupted vaulted ceiling in England. **Today,** Exeter is identified as one of the top ten most profitable locations for a business to be based.

Woodbury Park Hotel & Golf Club, Exeter, EX5 1JJ, UK – home of the MIRCE Akademy

8th World Congress of MIRCE Science 26-28 June 2019

BOOKING FORM

Email: quest@mirceakademy.com
Phone: +44 (0) 1395 233 856
Mail: MIRCE Akademy, Woodbury Park, Woodbury, Exeter, EX5 1JJ, United Kingdom
Web site: www.mirceakademy.com

THIS FORM MAY BE COPIED

Please select appropriate level of service and corresponding fee.

Group discounts are available please contact us.

The Symposium Fees includes:

- Attendance
- Congress Papers and Supporting Materials
- Lunches and Light Refreshments
- Gala Dinner on 27th June
- Free Parking fro 3 days
- Fish & Chips Event on 26th June

Value Added Tax (VAT)

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PAYMENT DETAILS

Please invoice my organisation (**Note: UK MOD personnel can pay by BACS through the DBA – Contractor Number will be supplied with invoice)**

For the attention of _____

Purchase Order No. _____

Please Charge credit card £ _____

Visa MasterCard Amex

Cardholder _____

Card No. _____

Expiry Date _____ Security Number_____

Signature _____

PERSONAL DETAILS (Please print clearly)

Surname _____

First name _____

Organisation _____

Department _____

Position _____

Address _____

_____

_____

Postcode _____ Country _____

Tel _____ Fax _____

E-mail _____

Special requirements Yes No

Please specify

I understand and accept the registration terms and conditions as shown

Signature _____ Date _____

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The organiser reserves the right to alter the programme or cancel the Summer School at its discretion. All places offered are subject to availability.