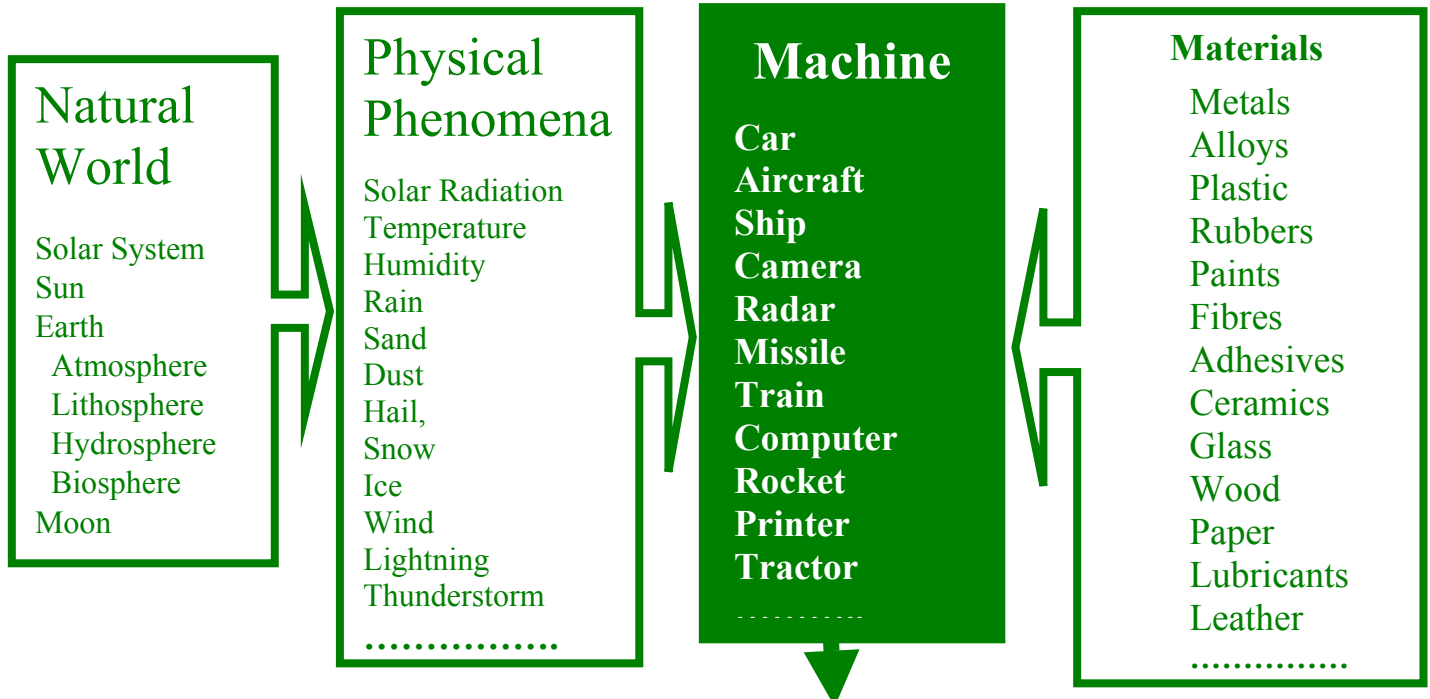


Impact of Natural World on Machine Failures

9 – 11 June 2008, MIRCE Akademy, Woodbury Park, Exeter, United Kingdom



Machine Failure Phenomena

- | | |
|-------------------------------------|--------------------------------------|
| 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 | Clogging by snow |
| 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/impregnates | Abrasive wear |
| Corrosion | Alkaline reactions |

“MIRCE-Mechanics is the science of the motion of failure phenomena through the Machine In-service Reliability. Cost & Effectiveness.” Dr J. Knezevic. 1999

For centuries, to satisfy some of their needs, humans have been making and using machines. However, while satisfying human needs, machines are continuously exposed to the natural world. This interaction is shaped through the large number of physical processes and events, some of which cause the failures of machines.

The main objective of the Symposium is to enhance the scientific understanding of the interactions between the physical phenomena created by nature (temperature, humidity, rain, snow, wind, sand, solar radiation, ice, hail and similar) and the physical properties of the materials (mechanical, optical, chemical, electrical, thermal, magnetic and similar) used by humans to create, operate, maintain and support machines.

Day One – Monday 9 June 2008

08.15 - 09.00: Registration

09.00 Natural World

- 10.30 • Solar System
- Sun
- The Planet Earth

10.30 - 11.00 : Tea / Coffee Break

11.00 The Atmosphere

12.00 (physical properties and phenomena)

12.00 The Lithosphere

13.00 (physical properties and phenomena)

13.00 - 14.00: Lunch

14.00 The Hydrosphere

15.00 (physical properties and phenomena)

15.00 - 15.30: Afternoon Tea

15.30 The Weather Phenomena

17.30 (physical manifestations and characteristics)

16.30 The Climate

17.30 (physical properties, types and distributions)

Day Two – Tuesday 10 June 2008

08.15 - 09.00: Registration

09.00 Impact of Temperature on Machine

10.30 Failures

10.30 - 11.00: Tea/Coffee

11.00 Impact of Humidity on Machine Failures

12.30

12.30 - 13.30 : Lunch

13.30 Impact of Cosmic Rays on Machine

14.15 Failures

14.15 Impact of Solar Radiation on Machine

15.00 Failures

15.00 - 15.30: Afternoon Tea

15.30 Natural World

17.00

&
Wings Around The World

Guest Speaker:

Polly Vacher MBE, GFMA

19.00 - 22.00 Symposium Dinner



Polly Vacher MBE is a renowned British Aviatrix and a Grand Fellow of the MIRCE Akademy. She entered the aviation history books as:

- The first person to fly solo around the world landing on all seven continents
- The first woman to fly solo in a single engine aircraft over the North Pole
- The first woman to fly solo in Antarctica

All three world records have been achieved during “Voyage to the Ice”, a project that started on 6th May 2003 from Birmingham International Airport. She flew to the North and finished at the same place on 27 April 2004 arriving from the South East. In between Polly flew for 497 hours, landed at 106 locations in 20 countries, covering the distance of 60,000 nautical miles (for more details go to www.worldwings.org).

Dr Jezdimir Knezevic is the host of the Symposium. His multi disciplinary theoretical knowledge, huge “hands-on” practical experience and an endless passion for the subject have attracted over 5000 engineers, managers and students to his courses and educational programmes in over 40 countries in six of the seven continents at universities, professional institutions, industry and government.

Dr Knezevic is the Founder and President of the MIRCE Akademy, an independent research and educational institution established to enhance, disseminate, apply and recognise the knowledge of the MIRCE-Mechanics.

Day Three – Wednesday 11 June 2008

08.15 09.00 - Registration

09.00 Impact of **Rain, Hail, Snow and Ice**,
10.30 on Machine Failures

10.30 11.00 - Tea/Coffee

11.00 The Impact of the **Dust and Sand** on
12.00 Machine Failures

12.00 The Impact of the **Wind** on Machine
13.00 Failures

13.00 – 14.00: Lunch

14.00 The Impact of **Lightning and**
15.00 **Thunderstorm** on Machine Failures

15.00 - 15.30 - Afternoon Tea

15.30 Technical Visit to:

- 17.00
- The F1 Reliability & Effectiveness Centre of the MIRCE Akademy
 - The Nigel Mansell World of Racing

Machine designers responsible for the provision of the machine inherent characteristics like: **performance, reliability, operability, maintainability, safety, transportability, affordability, testability, supportability** and so forth, could significantly benefit from the science based knowledge presented in this Symposium.

Machine managers involved with in-service processes like: **transportation, spares, training, provisioning, logistics, storage, maintenance, operation, packaging and similar**, that need to be planned, budgeted and delivered on monthly, quarterly, annual or life basis, could also benefit from the material discussed in this Symposium.

Each participant will receive a signed copy, as a part of a registration package, of the following books:

1. B2B/A+A, Polly Vacher's Voyage To The Ice, by Dr J.Knezevic, published by the MIRCE Akademy, ISBN 1-904848-01-X.

Copies of the book could be obtained from the Akademy. The proceeds of the sale are shared between scholarships awarded by the "Flying for the Disabled" and the MIRCE Akademy.

2. Machines Natural Environment, by Dr J.Knezevic to be published by the MIRCE Akademy in 2008.

Books published by the Akademy can be viewed at www.mirceakademy.com.

The Venue

The Symposium will be held at **Woodbury Park Hotel, Golf and Country Club**, which is approximately eight miles from Exeter by road.

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.

Delegates are responsible for the arrangement and payment of their own travel and accommodation. Delegates wishing to take advantage of preferential room rates should contact Woodbury Park Hotel Reservations quoting 'MIRCE'.

Woodbury Park Hotel, Golf and Country Club,
Woodbury, Exeter, EX5 1JJ, United Kingdom

Tel +44 (0) 1395 233 382

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Email enquiries@woodburypark.co.uk

Web www.woodburypark.co.uk

Relevant Events Symposia organised by the MIRCE Akademy for the year 2008.

7 – 11 July: International Summer School

Fundamentals of MIRCE-Mechanics

22 –24 September: International Symposium

- **Impact of the Human World on Machine Failures**

3 – 5 November: International Symposium

- **The impact of Software World on Machine Failures**

3 –5 December: International Symposium

- **The Impact of the Atomic World on Machine Failures**

For more details see: www.mirceakademy.com

or email: quest@mirceakademy.com

or ring: + 44 (0) 1395 233 856

MIRCE-Mechanics International Symposium

Impact of Natural World on Machine Failures

Registration Form

Fax +44 (0) 1395 233 899

Phone +44 (0) 1395 232 653

Mail MIRCE Academy, Woodbury Park, Woodbury, Exeter, EX5 1JJ, United Kingdom

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• On the day	No fee	N/a	No fee
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Other Rates			
Symposium Proceedings	250.00	43.75	293.75
Symposium Dinner	42.55	7.45	50.00

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Substitution of participants may be made at any time. If you intend to do this, please advise the MIRCE Science ('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 Symposium. MIRCE Science regrets that no refunds or credits will be made after the deadline unless the organiser cancels the Symposium.

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