**International Atomic Energy Agency**
**Department of Technical Cooperation**
**And**
**Nuclear Medicine and Diagnostic Imaging Section**
**Division of Human Health**

**WS-RAS6091-EVT1901109**

# IAEA Regional Workshop on Nuclear Neurology SPECT and PET applications in dementia, movement disorder, and epilepsy

**July 29 – Aug 2, 2019**

**National Center of Neurology and Psychiatry, Tokyo, Japan**

## Local Course Director

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# PROGRAM

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| **Monday, 29 July 2019**<br>**Multimedia hall (Library and Conference Center 1F, NCNP)** | | |
| **09:30-9:50** | Registration | |
| **9:50-10:30** | Opening remarks<br>Self-Introduction<br>Pre-Course Evaluation | Prof. Hidehiro Mizusawa (President, NCNP)<br>Prof. Jun Hatazawa (President, Japanese Society of Nuclear Medicine, Asia Oceania Foundation of Nuclear Medicine and Biology)<br>Prof. Hiroshi Matsuda (Course Director) |
| **SESSION 1 (Radiopharmaceutical and Image Analysis)**<br>**CHAIR:**<br>**Prof. Hiroshi Matsuda**<br>**National Center of Neurology and Psychiatry, Japan** | | |
| **10:30-11:00** | **Overview of PET radiopharmaceutical**<br><br>ILO:<br>1. Recognize the significance of radiopharmaceuticals used in PET brain imaging.<br>2. Integrate the concepts of radiopharmaceuticals in brain imaging within the context of best practices of the nuclear technology on the brain imaging | Dr. Harumasa Takano<br>(IBIC, NCNP ) |
| **11:00-12:00** | **Overview of SPECT radiopharmaceutical**<br><br>ILO:<br>1. Recognize the significance of radiopharmaceuticals used in SPECT/CT brain imaging.<br>2. Integrate the concepts of radiopharmaceuticals in brain imaging within the context of best practices of the nuclear technology on the brain imaging | Prof. Hiroshi Matsuda<br>(IBIC,NCNP) |
| **12:00-13:30** | **Lunch Break** | |
| **13:30-14:20** | **Statistical Image Analysis**<br><br>ILO:<br>Review and understand basic concept of statistical parametric analysis used in SPECT and PET combined with CT or MR for Neurological Imaging using Nuclear Medicine techniques | Prof. Hiroshi Matsuda<br>(IBIC,NCNP) |

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| **14:20-15:10** | **Dementia; SPECT diagnosis**<br><br>ILO:<br>1. Understand the pathophysiology of Alzheimer's disease.<br>2. Discuss the risk factors of Alzheimer's disease.<br>3. Discuss the role of SPECT nuclear medicine imaging in Alzheimer's disease | Prof. Hiroshi Matsuda (IBIC,NCNP) |
| **15:10-16:00** | **SPECT measures**<br><br>1. Understand the significance of SPECT measurements/ quantification factors used in PET brain imaging.<br>2. Integrate the concepts of radiopharmaceuticals in brain imaging within the context of best practices of the nuclear technology on the brain imaging | Prof. Hiroshi Matsuda (IBIC,NCNP) |
| **End of SESSION 1** | | |
| **18:30- Welcome Reception**<br>(Venue: Shinjuku Prince Hotel 25F, Restaurant FUGA) | | |

## Tuesday, 30 July 2019

**Multimedia hall (Library and Conference Center 1F, NCNP)**

## SESSION 2 (Epilepsy)

**CHAIR:**
**Prof. Hiroshi Matsuda**
**National Center of Neurology and Psychiatry, Japan**

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| **09:00-10:00** | **Clinical diagnosis, Medical Treatment**<br><br>ILO:<br>1. Understand the pathophysiology of seizures<br>2. Discuss the risk factors<br>3. Discuss the role of nuclear medicine imaging in seizures | Dr. Eiji Nakagawa (Department of Child Neurology, NCNP) |
| **10:00-11:00** | **Epileptic Surgery**<br><br>ILO:<br>1. Understand the importance of surgical management in seizures in the context of nuclear imaging | Dr. Masaki Iwasaki (Department of Neurosurgery, NCNP) |
| **11:00-12:00** | **MRI diagnosis of epilepsy**<br><br>ILO:<br>1. Describe appropriate ways of report writing in neurological cases with MR interpretation<br>2. Discuss the role of Brain Imaging using actual cases for image interpretation and its relevance in clinical practice | Dr. Noriko Sato (Department of Radiology, NCNP) |
| **12:00-13:30** | **Lunch Break** | |
| **13:30-15:00** | **FDG PET for detection of epileptic focus**<br><br>ILO:<br>1. Understand the pathophysiology of seizures<br>2. Discuss the risk factors<br>3. Discuss the role of nuclear medicine imaging in seizures | Dr. Emiko Morimoto (Department of Radiology, NCNP) |
| **15:00-16:00** | **SISCOM for detection of epileptic focus**<br><br>ILO:<br>1. Understand the pathophysiology of seizures<br>2. Discuss the risk factors<br>3. Discuss the role of SISCOM in seizures | Dr. Yukio Kimura (Department of Radiology, NCNP) |

**End of SESSION 2**

# Wednesday, 31 July 2019

**Multimedia hall (Library and Conference Center 1F, NCNP)**

## SESSION 3 (Dementia)

**CHAIR:**
**Prof. Hiroshi Matsuda**
**National Center of Neurology and Psychiatry, Japan**

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| **09:00-10:00** | **Clinical Diagnosis of Alzheimer's disease**<br><br>ILO:<br>1. Understand the pathophysiology of Alzheimer's disease.<br>2. Discuss the risk factors of Alzheimer's disease.<br>3. Discuss the role of nuclear medicine imaging in Alzheimer's disease | Dr. Yuma Yokoi (PMDA, Department of Psychiatry, NCNP) |
| **10:00-11:00** | **Clinical Diagnosis of Dementia with Lewy Bodies**<br><br>ILO:<br>1. Understand the pathophysiology of Dementia with Lewy Bodies.<br>2. Discuss the risk factors of Dementia with Lewy Bodies.<br>3. Discuss the role of nuclear medicine imaging in Dementia with Lewy Bodies | Dr. Tadashi Tsukamoto (Department of Neurology, NCNP) |
| **11:00-12:00** | **MRI diagnosis of Dementia**<br><br>ILO:<br>1. Discuss the role of nuclear medicine imaging and MRI in Dementia | Dr. Noriko Sato (Department of Radiology, NCNP) |
| **12:00-13:30** | **Lunch Break** | |
| **13:30-14:30** | **PET/MRI Molecular imaging**<br><br>ILO:<br>1. Discuss the role of PET/MRI nuclear medicine imaging in Alzheimer's disease | Prof. Hidehiko Okazawa ( Biomedical Imaging Research Center, Fukui University) |
| **14:30-15:30** | **Molecular Imaging**<br><br>ILO:<br>1. Understand the pathophysiology of Alzheimer's disease.<br>2. Discuss the risk factors of Alzheimer's disease.<br>3. Discuss the role of molecular imaging in Alzheimer's disease | Dr. Yoko Shigemoto (Department of Radiology, NCNP) |

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| **15:30-16:30** | **PET measures**<br><br>ILO:<br>1. Understand the significance of PET measurements/ quantification factors used in PET brain imaging.<br>2. Integrate the concepts of radiopharmaceuticals in brain imaging within the context of best practices of the nuclear technology on the brain imaging | Dr. Kyoji Okita (IBIC, NCNP) |
| **End of session 3** | | |
| **17:00- Excursion and Dinner**<br>(Venue: Tokyo Tower and Japanese Restaurant near Tokyo Tower) | | |

## Thursday, 1 August 2019

**Multimedia hall (Library and Conference Center 1F, NCNP)**

## SESSION 4 (Movement Disorder)

**CHAIR:**
**Prof. Hiroshi Matsuda**
**National Center of Neurology and Psychiatry, Japan**

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| **09:00-10:00** | **Clinical diagnosis, Medical Treatment**<br><br>ILO:<br>1. Understand the pathophysiology of Movement disorders.<br>2. Discuss the utilization of nuclear medicine imaging modalities in the evaluation of movement disorders | Dr. Noriko Nishikawa (Department of Neurology, NCNP) |
| **10:00-11:00** | **Deep Brain Stimulation**<br><br>ILO:<br>1. Discuss the utilization of Deep Brain Simulation in the evaluation of movement disorders | Dr. Yuiko Kimura (Department of Neurosurgery, NCNP) |
| **11:00-12:00** | **MRI diagnosis of movement disorders**<br><br>ILO:<br>1. Discuss the utilization of MRI in the evaluation of movement disorders | Dr. Yukio Kimura (Department of Radiology, NCNP) |
| **12:00-13:30** | **Lunch Break** | |
| | **Blood flow and Metabolism**<br><br>ILO:<br>1. Review the significance of Blood flow and metabolism in the management of movement disorders | Prof. Hiroshi Matsuda (IBIC,NCNP) |
| | **Role of MIBG**<br><br>ILO:<br>1. Review the significance of MIBG in the management of movement disorders | Prof. Hiroshi Matsuda (IBIC,NCNP) |
| | **Role of DaT SPECT**<br><br>ILO:<br>1. Review the significance of DAT SPECT in the management of movement disorders | Prof. Hiroshi Matsuda (IBIC,NCNP) |

## END OF SESSION 4

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| **Friday, 2 August 2019**<br><br>**Multimedia hall (Library and Conference Center 1F, NCNP)** | | |
| **SESSION 5 (Neuropathology and Radiochemistry)**<br><br>**CHAIR:**<br>**Prof. Hiroshi Matsuda**<br>**National Center of Neurology and Psychiatry, Japan** | | |
| **09:00-10:00** | **Neuropathology of neurodegenerative diseases**<br><br>ILO:<br>1. Understand the pathophysiology of neurodegenerative disorders<br>2. Discuss the utilization of nuclear medicine imaging modalities in the evaluation of neurodegenerative disorders | Dr. Yuko Saito (Department of Neuropathology, NCNP) |
| **10:00-11:00** | **Radiochemistry and Pharmacy**<br><br>ILO:<br>1. Recognize the significance of radiopharmaceuticals used in neurodegenrative disorder imaging.<br>2. Integrate the concepts of radiopharmaceuticals in brain imaging within the context of best practices of the nuclear technology on the brain imaging" | Dr. Koichi Kato (IBIC, NCNP) |
| **End of Session 5** | | |
| **11:00-12:00** | Closing Remarks<br>Post course evaluation | Prof. Hiroshi Matsuda (IBIC,NCNP) |

This workshop is accredited by the UEMS- EACCME (European Union of Medical Specialists - European Accreditation Council for Continuing Medical Education) with 24 European CME credits.