

# 7TH YOUNG RESEARCHERS IN BORON NEUTRON CAPTURE THERAPY MEETING

HOTEL SARAY, SALA ALHAMAR

Granada, 22<sup>nd</sup> to 26<sup>th</sup> September, 2013

Sunday 22nd

19:30	WELCOME RECEPTION	Hotel Saray
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Monday 23rd

9:00	I. Porras	Opening
9:10	L. Kankaanranta	BNCT in the treatment of Head and Neck Cancer
9:50	A. Kreiner	Present status of Accelerator-Based BNCT
10:30	<i>Coffee Break</i>	
	<b><i>Neutron Sources 1</i></b>	<b><i>Chair: J. Praena</i></b>
11:00	H. Kumada	Current status of the development of the linac based BNCT facility of University of Tsukuba
11:30	L. Evangelista	The MUNES project: State of the art of the INFN BNCT initiative
11:55	S. Domanski	Epithermal neutron source at Maria reactor
12:20	A. Kuznetsov	VITA neutron source for BNCT- Status & prospects
12:45	<i>Lunch</i>	
14:00	C. Viñas	The uniqueness of boron clusters for drugs in pharmacology and BNCT
	<b><i>Boron compounds</i></b>	<b><i>Chair: H. Nakamura</i></b>
14:40	R. Núñez	Design and synthesis of boron-rich large molecules for BNCT
15:10	C.-Y. Hsieh	Design and Synthesis of Boron Containing Nanoparticles as BNCT Carrier Agent
15:35	A. Ilinova	Design and biological investigations of the boron cluster conjugates with 5-ethynyl-2'-deoxyuridine as potential BNCT drugs
16:00	M. Bartok	Formation of pores in bilayers with dodecahalogen dodecaborates
16:25	<i>Coffee Break</i>	
17:00	<b><i>Poster presentations</i></b>	<b><i>Chair: M.-H. Hsu and G. Vivaldo</i></b>
17:30	Poster viewing	

Tuesday 24th

8:00	A. Matsumura	Past, present & future of i- BNCT project
	<b><i>Clinical Applications and biological studies</i></b>	<b><i>Chair: D. Ngoga</i></b>
8:40	N. Protti	Dose calculation in Sprague-Dawley rats affected by limb osteosarcoma for BNCT in vivo tests at the TRIGA reactor in Pavia
9:10	T. Aihara	Boron-neutron capture therapy for newly diagnosed head and neck cancer in initial treatment.
9:40	T. Andoh	Boron neutron capture therapy (BNCT) as a new therapeutic approach for treatment of clear cell sarcoma (CCS): Basic study on a lung metastasis model of CCS for BNCT
10:05	A. Molinari (A. Portu)	Tumor blood vessel normalization prior to Sequential Boron Neutron Capture Therapy (Seq-BNCT) achieves 100% tumor response in an experimental model of oral cancer
10:30	<i>Coffee Break</i>	
11:00	D. Nigg	Physical Dosimetry and Spectral Characterization of Neutron Sources for Neutron Capture Therapy - A Brief History and Overview
	<b><i>Neutron Sources 2</i></b>	<b><i>Chair: H. Kumada</i></b>
11:40	Y.-H. Liu	Mixed Field Dosimetry at the THOR BNCT Facility
12:05	Y. Kasesaz	Conceptual Design of an epithermal neutron beam in thermal column of Tehran Research Reactor
12:30	M. Mitev	Sensitivity study of F/M materials for IRT-Sofia NCT beam
12:55	<i>Lunch</i>	
14:00	S. Green	Developing the accelerator neutron source for BNCT in Birmingham: dosimetry and radiobiology studies
	<b><i>Dosimetry and T.P.</i></b>	<b><i>Chair: Y.-H. Liu</i></b>
14:40	H. Koivunoro	BNCT treatment planning options for head and neck cancer patients
15:10	K. Yamanashi	Verification of the new BNCT treatment planning system in Tsukuba
15:35	T. Schmitz	The Response of Formate ESR Dosimeters in Thermal Neutron Fields
16:00	M.-C. Hsiao	In-phantom gamma-ray dose mapping in the THOR BNCT epithermal neutron beam
16:25	<i>Coffee Break</i>	
17:00	G. Santa Cruz	Microdosimetry: principles and applications
17:30	Poster viewing	
20:00		RECEPTION AT THE ALHAMBRA AND NIGHT VISIT TO THE PALACE

Wednesday 25th

8:30	D. Gabel	How do we find the ideal compound for BNCT?
	<b><i>Chemistry and pharmacology</i></b>	<b><i>Chair: R. Núñez</i></b>
9:10	H. Nakamura	Development of high boron content molecules and their liposome encapsulation for neutron capture therapy
9:40	S. Lin-Chiang Huang	Targeted Drug Delivery System Design & Development for Boron Neutron Capture Therapy
10:05	L. Ciani	Rational design of gold nanoparticles functionalized with carboranes for application in BNCT
10:30	N. Dewi	In vivo Study of Gadolinium-based Compounds as Neutron Capture Therapy Agent
10:55	<i>Coffee Break</i>	
	<b><i>B detection and imaging 1</i></b>	<b><i>Chair: N. Protti</i></b>
11:30	Y. Sakurai	A study of boron-dose estimation using boron concentration in plasma
12:00	M. Manabe	Study on measuring device arrangement method of Array-type CdTe Detector for BNCT-SPECT
12:30	A. Portu	Autoradiography in nuclear track detectors: simultaneous observation of cells and nuclear tracks from BNC reaction
12:55	<u>Lunch</u>	
14:00	K. Ono	BNCT research in KURRI and start of clinical BNCT trial by small cyclotron neutron generator in KURRI
	<b><i>Neutron beams</i></b>	<b><i>Chair: S. Bortolussi</i></b>
14:40	K. Tanaka	Monte Carlo investigation on measuring spatial distribution of neutrons and gamma rays using multi imaging plate system
15:05	W.-L. Chen	The error index of Monte-Carlo-based detector combination optimization for neutron spectrum deconvolution
15:30	A. Makarov	Neutron spectrum measurement on the tandem accelerator for BNCT using a new time-of-flight method
15:55	Z.-C. Lee	Neutron beam shielding patch for absorbing overdose of neutron radiation
16:20	<i>Coffee Break</i>	
	<b><i>B detection and imaging 2</i></b>	<b><i>Chair: Y. Sakurai</i></b>
16:50	H. Tanaka	Study on the evaluation of $^{10}\text{B}$ concentration using proton-induced prompt gamma ray analysis for BNCT
17:20	I. Postuma	An improved neutron autoradiography set-up, applied to $^{10}\text{B}$ concentration measurements for biological samples
20:00		CONFERENCE DINNER

Thursday 26th

8:10	D. Ngoga	The lessons learnt from the Birmingham pharmacokinetic study of BPA-mannitol in patients with high grade glioma to optimise uptake parameters for clinical trials of BNCT
	<b><i>Applications and biological studies 2</i></b>	<b><i>Chair: G. Santa Cruz</i></b>
8:50	A. Monti Hughes	Radioprotective agents to reduce BNCT-induced mucositis in premalignant tissue: Preliminary study in an oral precancer model
9:15	H.-H. Lin	BNCT as alternative radiotherapy ---an application on radioresistance GBM
9:40	C. Rovelli	In situ lung BNCT in a rat model: preliminary histological results on treatments toxicity and efficacy
10:05	N. Kondo	Detection of gamma H2AX foci in mouse brain tissue after neutron capture therapy
10:30	<i>Coffee Break</i>	
11:00	T. Kobayashi	Future of Accelerator Based BNCT Neutron Irradiation System using Liquid Lithium Target - The Usage of Neutrons by ${}^7\text{Li}(p,n){}^7\text{Be}$ Near Threshold Reactions -
	<b><i>Simulations for new applications</i></b>	<b><i>Chair: H. Tanaka</i></b>
11:40	M. Ziegner	Monte Carlo dose assessment in cell cultures after enrichment with Gadolinium and irradiation in the neutron field of the TRIGA Mainz
12:05	K. Alikaniotis	Radiotherapy dose enhancement using BNCT in conventional LINACs high-energy treatment: simulation and experiment
12:30	M. Sabaté-Gilarte	Measurement of the ${}^{33}\text{S}(n,\alpha)$ cross section at n_TOF: applications to BNCT
12:55	<i>Lunch</i>	
14:00	<b><i>Round table</i></b>	<b><i>A look ahead to the future of BNCT</i></b>
15:00		IAEA TEC-DOC DISCUSSIONS

## Posters

P1	M.E. Capoulat	Measurement of the double-differential neutron yield of the $9\text{Be}(d,n)10\text{B}$ reaction in the low bombarding energy regime.
P2	V.A. de Castro	Monitoring and evaluation of the irradiation beam of BNCT research facility at IPEN
P3	L. Galletti	Neutron Production Target for Accelerator - Based Boron Neutron Capture Therapy
P4	M.S. Herrera	New computational method to evaluate the $7\text{Li}(p,n)7\text{Be}$ reaction near threshold for accelerator-based BNCT and other applications
P5	M. Sabariego	Rapid evaluation of the gamma dose due to Hydrogen radiative capture in BNCT simulations.
C1	J. Cabrera	Boron enrichment of porphyrin dendrimers with potential application in BNCT
C2	C. Bi	Determination of the isolated quantitation of BSH and BPA by liquid chromatography-electrospray ionization-mass spectrometry (LC/MS)
C3	A. Ogarkov	New efficient methods for the synthesis of cluster anion $[\text{B}_{12}\text{H}_{12}]^{2-}$ derivatives with the exopolyhedral B-OH reaction site for the subsequent modification in developing BNCT preparations
C4	K. Saito	Simultaneous determination of trace amount of boron-10 chemical species and their concentration in blood by $^{10}\text{B}$ -NMR
C5	C. Schütz	Histomorphological analysis and quantitative determination of p boronophenylalanine in thin tissue sections by LA-ICP-MS for BNCT
C6	M. Shirakawa	Boron Neutron Capture Therapy (BNCT) for liposomal Drug Delivery System by passive targeting.
C7	Y. Yamaguchi	Method development for boron isotope analysis in whole blood by HR-ICP-MS
B1	S. Masunaga	The dependency of compound biological effectiveness factors on the type and concentration of administered neutron capture agents in BNCT
B2	E. Pozzi	Design and characterization of a novel neutron shield for BNCT in an experimental model of oral cancer in the hamster cheek pouch at RA-3