PTCOG 57 SCIENTIFIC MEETING
MAY 24 - 26, 2018

Scientific Meeting Program
Thursday, May 24, 2018

Chair
Jay Flanz, USA
Anthony Mascia, USA
Abram Gordon, USA

08:30 - 09:00
Physics Slam

Chair
Antony Lomax, Switzerland

09:00 - 10:30
Session title: Dose Calculation and Optimization
Session type: Physics

Chair
Richard Amos, United Kingdom
Yongbin Zhang

09:00 - 09:10
O 001: New range margin recommendations based on dose calculation uncertainties
Speaker: J. Schuemann, USA

09:10 - 09:20
O 002: Shortening delivery times for PBS proton therapy by reducing the number of proton spots without compromising dosimetric plan quality
Speaker: M.F. Belosi, Switzerland

09:20 - 09:30
O 003: Limitations of worst case robust optimization: a comparison with an all-scenario approach
Speaker: J. Ma, USA

09:30 - 09:40
O 004: L1-Spot: iteratively constrained spot optimization with L1-sparsity regularization for generating efficient proton PBS plans
Speaker: Y. Lin, USA

09:40 - 09:50
O 005: FROG - A new calculation engine for physical and biological dose investigations at CNAO
Speaker: K. Choi, Italy
09:50 - 10:00
**O 006: Development of an analytical dose-averaged LET calculation algorithm for spot-scanning proton therapy**
*Speaker:* S. Hirayama, Japan

10:00 - 10:10
**O 007: Determining end-of-range RBE in temporal lobe based on long-term follow-up data from patients with nasopharyngeal carcinoma**
*Speaker:* Y. Zhang, China

10:10 - 10:20
**O 008: Uncertainties in proton stopping power ratio (SPR) from a novel CT/MRI tissue classification model**
*Speaker:* A. WITZTUM, USA

10:20 - 10:30
**O 009: Comprehensive log-file based Monte Carlo validations of a fast, analytical dose calculation for pencil beam scanned proton therapy.**
*Speaker:* C. Winterhalter, Switzerland

09:00 - 10:30
**Session title:** Pediatrics  
**Session type:** Clinics

**Chair**
NN

09:00 - 09:10
**O 010: The impact of LET/RBE modelling and robust analysis on skull-base and paediatric craniopharyngioma proton plans, benchmarked against VMAT**
*Speaker:* A. Gutierrez, United Kingdom

09:10 - 09:20
**O 011: Impact of radiotherapy modality on neuropsychological outcomes of pediatric brain tumor patients**
*Speaker:* J. GROSS, USA

09:20 - 09:30
**O 012: Comparison of symptomatic and asymptomatic imaging changes following pencil-beam scanning and uniform scanning proton therapy for posterior fossa tumors**
*Speaker:* J. GROSS, USA

09:30 - 09:40
**O 013: Factors Associated with Insurance-Related Referral Delays in Children Irradiated with Proton Therapy in the Pediatric Proton Consortium Registry**
*Speaker:* C. Hess, USA

09:40 - 09:50
**O 014: Craniospinal irradiation: Evaluation of proton range deviation using daily CBCT**
*Speaker:* W. Yao, USA
09:50 - 10:00
**O 015: Practice trends for vertebral body coverage of pediatric patients undergoing proton craniospinal irradiation**
*Speaker: S. Medek, USA*

10:00 - 10:10
**O 016: Proton versus photon radiation therapy for pediatric head and neck rhabdomyosarcoma: disease control, overall survival, and toxicity**
*Speaker: D. Casey, USA*

10:10 - 10:20
**O 017: Proton Beam Therapy for orbital Rhabdomyosarcomas at West German Proton Therapy Center Essen (WPE)**
*Speaker: D. Geismar, Germany*

10:20 - 10:30
**O 018: Carbon ion radiotherapy for inoperable pediatric osteosarcoma**
*Speaker: O. Mohamad, Japan*

**Chair**
Jay Flanz, USA

11:00 - 12:00 (Grand Ballroom)
**Keynote Lecture**
*Speaker: Ernest J. Moniz, USA*

13:00 - 14:00
**Session title:** Quality Assurance 1  
**Session type:** Physics

**Chair**
Håkan Nystrom, Sweden

13:00 - 13:10
**O 019: Gamma Electron Vertex Imaging (GEVI) for Proton Beam Range Measurement: Experimental Results**
*Speaker: S.H. Kim, Korea Republic of*

13:10 - 13:20
**O 020: How risky is 4D planning? - A FMEA based human error comparison of 3D/4D PT QA planning risks performed at CPT/PSI**
*Speaker: F. Emert, Switzerland*

13:20 - 13:30
**O 021: Proton range verification through acoustic measurements**
*Speaker: W. NIE, USA*

13:30 - 13:40
**O 022: Intrafractional visualisation of the scanning pencil beam in 12C radiotherapy**
*Speaker: R. Felix Bautista, Germany*
13:50 - 14:00
**O 023: An activity to improve the quality through the dose intercomparison by end-to-end test in carbon-ion radiation therapy centers in Japan**
*Speaker: H. Mizuno, Japan*

13:00 - 14:00
**Session title:** Biology Differences  
**Session type:** Biology

13:00 - 13:10
**O 024: Differences in human endothelial cell activation after irradiation with photons vs. protons in the proximal and distal spread-out Bragg peak**
*Speaker: R. Vatner, USA*

13:10 - 13:20
**O 025: Drosophila melanogaster may be a useful model organism to study biological effects of proton radiation**
*Speaker: K. Nakajima, Japan*

13:20 - 13:30
**O 026: Radiobiological impact of mixed field from target fragments in proton treatment plans**
*Speaker: V.E. Bellinzona, Italy*

13:30 - 13:40
**O 027: Differential inflammatory and metabolic gene expression profiles of murine and human cancer cell lines after proton vs. photon irradiation**
*Speaker: S. Singhaviranon, USA*

13:40 - 13:50
**O 028: Comparison of the effect of X-ray, carbon ion beam and proton beam on metastatic potential.**
*Speaker: R. Kondo, Japan*

13:50 - 14:00
**O 029: Hadron minibeam radiation therapy: disentangling molecular and cellular effects in glioma cells with synchrotron-based infrared microspectroscopy**
*Speaker: Y. Prezado, France*

14:00 - 15:00
**Session title:** Quality Assurance 2  
**Session type:** Physics

**Chair**
Narayan Sahoo, USA  
Liyong Lin, USA

14:00 - 14:10
**O 030: Is deposited energy a useful metric in the quality assurance of pencil-beam-scanning plans?**
*Speaker: R. Slopsema, USA*
14:10 - 14:20
O 031: Proton beam ruler – a fast proton range measurement tool using a scintillator block and camera
Speaker: D. Robertson, USA

14:20 - 14:30
O 032: Highlights from the 2nd International Proton Treatment Efficiency Workshop sponsored by the PTCOG Treatment Efficiency Subcommittee
Speaker: D. Mundy, USA

14:30 - 14:40
O 033: In-room characterisation, using an anthropomorphic phantom, of a novel monitor exploiting secondary charged particles emission in light ion PT treatments
Speaker: A. Sarti, Italy

14:40 - 14:50
O 034: Scintillator-based system for transversal dose profiles reconstruction
Speaker: R. Catalano, Italy

14:50 - 15:00
O 035: Implementation of a non-invasive online beam monitor at a 60 MeV proton therapy beamline
Speaker: J.S.L. Yap, United Kingdom

14:00 - 15:00
Session title: Breast / GI
Session type: Clinics

Chair
Teresa Meier, USA

14:00 - 14:10
O 036: Prospective study of 3 fractions pencil-beam scanning partial breast irradiation: early provider and patient-reported outcomes of a novel regimen
Speaker: R. Mutter, USA

14:10 - 14:20
O 037: Improved long-term patient-reported health and well-being outcomes of early-stage breast cancer treated with partial breast proton therapy.
Speaker: S. Teichman, USA

14:20 - 14:30
O 038: Initial experience with barrier film dressing for dermatitis prophylaxis in breast proton therapy
Speaker: K. Corbin, USA

14:30 - 14:40
O 039: Proton Beam Therapy for Hepatocellular Carcinoma associated with Inferior Vena Cava Tumor Thrombus
Speaker: Y. Sekino, Japan
14:40 - 14:50
**O 040:** Proton radiotherapy for locally advanced pancreatic cancer (LAPC) – limiting duodenal toxicity.
*Speaker:* P. Vitek, Czech Republic

14:50 - 15:00
**O 041:** Is proton SBRT an attractive option for liver metastases? Results of a 5-year observational study for 80 hepatic lesions
*Speaker:* D. Sufficool, USA

15:30 - 17:00
**Session title:** Beam Delivery and Nozzle Design
**Session type:** Physics

**Chair**
Niek Schreuder, USA
Nobuyuki Kanematsu, Japan

15:30 - 15:40
**O 042:** Innovative strip silicon detectors for proton beam monitoring: preliminary results.
*Speaker:* A. Vignati, Italy

15:40 - 15:50
**O 043:** Dynamic beam current control for improved dose accuracy in PBS proton therapy
*Speaker:* C. Bula, Switzerland

15:50 - 16:00
**O 044:** Commissioning of a unique penumbra sharpening adaptive aperture of HYPERSCAN
*Speaker:* M. Kang, USA

16:00 - 16:10
**O 045:** External beam radiotherapy for ocular melanoma: A comparative study low energy protons vs. pencil scanning high energy protons vs Cyberknife
*Speaker:* A. Gerard, France

16:10 - 16:20
**O 046:** Utilization of an isocentric rotating chair for treating head/neck cancer at seating in fixed particle beamline
*Speaker:* W.C. Hsi, China

16:20 - 16:30
**O 047:** Clinical implementation of the patient-specific apertures used in commercial proton pencil beam scanning systems
*Speaker:* H. Liu, USA

16:30 - 16:40
**O 048:** A novel deliver sequence and efficiency optimization algorithm for Spot-Scanning Proton Arc therapy
*Speaker:* X. Ding, USA
16:40 - 16:50  
**O 049: Superconducting gantry for proton therapy with a large momentum acceptance**  
*Speaker:* K.P. Nesteruk, Switzerland

15:30 – 16:30  
**Session title:** 4D Treatment, Delivery and Modelling  
**Session type:** Physics

**Chair**  
Marco Riboldi, Italy

15:30 - 15:40  
**O 050: 4D dose evaluation for PBS proton treatment of pancreatic cancer using repeated 4D MR datasets**  
*Speaker:* K. Dolde, Germany

15:40 - 15:50  
**O 051: 4D robust optimization including time structures can reduce the interplay effect in proton pencil beam scanning radiotherapy**  
*Speaker:* E. Engwall, Sweden

15:50 - 16:00  
**O 052: Robust treatment planning with 4D intensity modulated particle therapy for multiple targets in stage IV non-small cell lung cancer**  
*Speaker:* M. Wolf, Germany

16:00 - 16:10  
**O 053: Evaluation of 4D plan robustness using lung 4D CT (MRI)**  
*Speaker:* M. Krieger, Switzerland

16:10 - 16:20  
**O 054: Alternating intra-field scan direction in rescanning for improved motion mitigation**  
*Speaker:* G. Fattori, Switzerland

16:20 - 16:30  
**O 055: Feasibility of Noninvasive Cardiac Ablation Utilizing Intensity Modulated Proton Therapy to Treat Ventricular Tachycardia**  
*Speaker:* S.M. Goddu, USA
Scientific Meeting Program
Friday, May 25, 2018

08:00 - 08:30
Session title: Clinics Slam
Session type: Clinics

Chair
Anita Mahajan, USA

08:30 - 10:00
Session title: Interdisciplinary session - Cost Effectiveness Research
Session type: Special Session

Chair
Jay Flanz, USA

08:30 - 08:40
O 056: Utilizing imaging thresholds to improve setup efficiency for proton therapy patients
Speaker: S. Petro, USA

08:40 - 08:50
O 057: Helical Tomotherapy alone versus helical Tomotherapy + proton beam therapy combination in nasopharynx and oropharynx cancer: comparison of acute toxicity
Speaker: S.G. Park, Korea Republic of

08:50 - 09:00
O 058: Efficiency improvements in the periodic quality assurance procedures at the Shanghai Proton and Heavy Ion Center SPHIC
Speaker: N. Schlegel, China

09:00 - 09:10
O 059: Estimation of the risk for sequelae following radiosurgery of liver metastases
Speaker: G. Mondlane, Sweden

09:10 - 09:20
O 060: Potential benefit of using an adaptive aperture in treating small lesions in the brain with proton therapy
Speaker: I. P Almeida, Netherlands

09:20 - 09:30
O 061: The development of a unique co-linearity set-up and test phantom for a Patient positioner mounted image guidance system.
Speaker: N. Schreuder, USA

09:30 - 09:40
O 062: Plan analysis tools to quantify proton IMPT complexity
Speaker: A. Gosling, United Kingdom
09:40 - 09:50
**O 063: Which proton imaging setup should we use in a proton therapy facility?**
*Speaker:* N. Krah, France

09:50 - 10:00
**O 064: Is the dose-mean LET an appropriate predictor for RBE?**
*Speaker:* CH. Graeff, Germany

10:00 - 10:10
**O 065: Normal tissue complication probability models in plan evaluation of children with brain tumours referred to proton therapy**
*Speaker:* C. Stokkevag, Norway

10:10 - 10:20
**O 066: Cost comparison of hepatocellular carcinoma treatment with either proton radiotherapy or transarterial chemoembolization as assessed from a randomized clinical trial.**
*Speaker:* D. Bush, USA

10:30 - 11:30
**Session title:** Interdisciplinary Session - Invited Panel  
**Session type:** Special Session

*Chair*
Anthony Mascia, USA

13:30 - 15:00
**Session title:** Head and Neck / GU  
**Session type:** Clinics

*Chair*
Joseph Tung-Chieh Chang, Taiwan  
William Barrett, USA

13:30 - 13:40
**O 067: Stereotactic proton radiotherapy in the treatment of low and intermediate risk prostate cancer – 2-years results**
*Speaker:* J. Kubes, Czech Republic

13:40 - 13:50
**O 068: Prospective patient-reported quality-of-life outcome of the initial 100 prostate cancer treated with the first clinical image-guided compact pencil-beam proton unit.**
*Speaker:* J. Wang, USA

13:50 - 14:00
**O 069: Peripheral Lymphocyte Subpopulation Variation and Hematologic changes after Carbon Ion Radiotherapy in Patients with Prostate Cancer**
*Speaker:* Z. Yang, China
14:00 - 14:10
**O 070**: Minimal acute toxicity in major salivary gland patients after proton beam therapy: Outcomes from the Proton Collaborative Group REG001-09 trial
**Speaker**: M. Chuong, USA

14:10 - 14:20
**O 071**: Boron Neutron Capture Therapy for Locally Recurrent Head and Neck Squamous Cell Carcinoma: A Retrospective Analysis of Dose Response
**Speaker**: H. Koivunoro, Finland

14:20 - 14:30
**O 072**: Comparison of dose-response of acute mucositis after C-ion RT for patients treated at NIRS and CNAO
**Speaker**: P. Fossati, Austria

14:30 - 14:40
**O 073**: Patient and public involvement in design of a phase III trial comparing IMPT versus IMRT in low risk oropharyngeal cancer
**Speaker**: C. Hague, United Kingdom

13:30 - 15:00
**Session title**: Accepting & Commissioning of New Facilities
**Session type**: Physics

**Chair**
Alejandro Mazal, France
Lei Dong, USA

13:30 - 13:40
**O 074**: Commissioning of the ProNova SC360 PBS for first patient treatment at the Provision CARES Proton Therapy Center
**Speaker**: L. Derenchuk, USA

13:40 - 13:50
**O 075**: Implementation of clinical Helium beams at the Heidelberg Ion Therapy Centre
**Speaker**: T. Haberer, Germany

13:50 - 14:00
**O 076**: Commissioning of the First Mevion HYPERSCAN Proton Pencil Beam Scanning System
**Speaker**: D. Pang, USA

14:00 - 14:10
**O 077**: Commissioning of the Neutron Therapeutics BNCT system at Helsinki University Hospital
**Speaker**: N. Smick, USA
14:10 - 14:20
O 078: Clinical Integration of RayStation, ARIA, and adaPT for Pencil Beam Scanning Proton Therapy
Speaker: S. Rana, USA

14:20 - 14:30
O 079: Design and Dosimetric Characterization of 3D Printed Small Animal Immobilization and Collimator for Pencil Beam Scanning Proton Research Room
Speaker: A. Mascia, USA

14:30 - 14:40
O 080: A strategy to minimize commissioning time for a pencil-beam-scanning proton system
Speaker: W.C. Hsi, USA

14:40 - 14:50
O 081: System Architecture and Design Principles for Cost Effective Design of a Compact Proton Therapy System
Speaker: T. Zwart, USA

15:30 - 17:00
Session title: Biology Optimisation and Translational Research
Session type: Biology

Chair
Ralph Vatner, USA

15:30 - 15:40
O 082: Potential of particle therapy in combination with Ipilimumab and Nivolumab in B16 melanoma and LM8 osteosarcoma mouse models
Speaker: A. Helm, Italy

15:40 - 15:50
O 083: Proton mini-beam radiation therapy widens the therapeutic window for gliomas
Speaker: Y. Prezado, France

15:50 - 16:00
O 084: Anti-tumor and anti-metastasis effects of carbon-ion radiotherapy combined with anti-CTLA4 antibody
Speaker: L. Ma, Japan

16:00 - 16:10
O 085: Targeting mitochondrial fission for the sensitization of lymphoma cells to proton therapy
Speaker: M. Sertorio, USA
16:10 - 16:20

**O 086:** Nano-molar concentrations of duocarmycin SA significantly enhances the effects of proton irradiation on human glioblastoma cells

*Speaker:* M. Vazquez, USA

16:20 - 16:30

**O 087:** Radiosensitization effect of Talazoparib, a PARP inhibitor, on Glioblastoma stem cells exposed to X-Rays and Carbon ions

*Speaker:* Y. Saintigny, France

16:30 - 16:40

**O 088:** Evaluation of the impact of proton mini-beam radiation therapy on motor, emotional and cognitive functions

*Speaker:* C. Lamirault, France

16:40 - 16:50

**O 089:** Molecular mechanism of PD-L1 upregulation in cancer cells after irradiation

*Speaker:* H. Sato, Japan

16:50 - 17:00

**O 090:** Determining the RBE of particle irradiation via development of a novel quantitative and functional DNA-double strand break repair assay

*Speaker:* A. Nowrouzi, Germany

17:00 - 17:10

**O 091:** Dissecting microRNA regulation in human intestinal organoids after photon and clinical raster-scanning proton and carbon ion beams

*Speaker:* A. Nowrouzi, Germany

17:10 - 17:20

**O 092:** Multicellular 3-dimensional spheroid models to study tumor-stroma-immune cell response to proton radiation

15:30 – 16:30

**Session title:** Absolute and Relative Dosimetry

**Session type:** Physics

**Chair**
Roelf Slopsema, USA
Vladimir Vondracek, Czechia

15:30 - 15:40

**O 093:** Innovative device for online in-vivo dose monitoring based on charge unbalance in patients undergoing radiotherapy

*Speaker:* G. Petringa, Italy
15:40 - 15:50
O 094: Monte Carlo calculated correction factors for a proton calorimeter in clinical proton beams
Speaker: F. Romano, United Kingdom

15:50 - 16:00
O 095: Towards prompt gamma spectroscopy for C-12 range control: development of a synchrotron-dedicated system
Speaker: R. Dal Bello, Germany

16:00 - 16:10
O 096: Detection of ionacoustic signal from low intensity proton and carbon ion beams
Speaker: Z. Chen, China

16:10 - 16:20
O 097: Evaluation of the particle transport accuracy in the FLUKA Monte Carlo code for proton therapy dosimetry applications
Speaker: A. Lourenco, United Kingdom

16:20 - 16:30
O 098: A comprehensive evaluation of air gaps in pencil beam scanning proton therapy: dosimetric impact and clinical tolerance
Speaker: Z. Xiao, USA

16:30 - 17:30
Session title: Sarcoma / Lung
Session type: Clinics

Chair
NN

16:30 - 16:40
O 099: Intensity-modulated proton therapy with small spots and volumetric-modulated arc therapy in the treatment of stage III non-small cell lung cancer
Speaker: C. Liu, USA

16:40 - 16:50
O 100: Preliminary observation of carbon ion radiotherapy for tracheal adenoid cystic carcinoma
Speaker: J. Chen, China

16:50 - 17:00
O 101: Definitive Proton Based Radiotherapy for Unresected Chordomas: Local Results, Tolerability, and Patterns of Progression
Speaker: Y. Chen, USA

17:00 - 17:10
O 102: Proton-based high-dose pre-operative radiation is associated with higher local control than low-dose pre-operative radiation with equivalent rate of wound complication
Speaker: G. Maquilan, USA
17:10 - 17:20
O 103: Integration of Electrocardiogram-gated CT with Coronary Angiography (E-CTA) and Pencil Beam Scanning Proton Therapy for the Treatment of Mediastinal Lymphomas
Speaker: S. Lester, USA

17:20 - 17:30
O 104: Clinical Results of Phase I Trial of Preoperative IMPT with Simultaneously Integrated Boost (SIB) to the High-Risk Margin for Retroperitoneal Sarcomas (RPS)
Speaker: NN

17:30 - 18:30
Session title: Moderated Poster Session
Session type: Poster Session
Scientific Meeting Program
Saturday, May 26, 2018

08:00 - 08:30
Session title: Biology Slam
Session type: Biology

Chair
Marcelo Vazquez, USA

08:30 - 10:00
Session title: Biomarkers and Biological Modelling
Session type: Biology

Chair
Michael Story, USA
Karen Kirkby, United Kingdom

08:30 - 08:40
O 105: Calculating dose weighted mean lineal energy for input into the micro dosimetric kinetic model for predicting proton RBE
Speaker: M. Newpower, USA

08:40 - 08:50
O 106: Monte Carlo simulations of direct DNA damage on gold nanoparticle enhanced proton therapy
Speaker: M. Sotiropoulos, United Kingdom

08:50 - 09:00
O 107: In-silico modelling of Non-Homologous End Joining and Homologous Recombination can demonstrate mechanistic interactions between repair pathways
Speaker: S. Ingram, United Kingdom

09:00 - 09:10
O 108: Infidelity in proton therapy: Getting double strand breaks back together
Speaker: N. Henthorn, United Kingdom

09:10 - 09:20
O 109: Is there a clinical indication of the need of variable proton RBE in patients with hypothyroidism?
Speaker: P. Yepes, USA

09:20 - 09:30
O 110: SDD: A standardised data format to record DNA damage and facilitate collaboration
Speaker: J.W. Warmenhoven, United Kingdom
09:30 - 09:40
O 111: Nano-vesicles are a Potential Tool to Monitor Therapeutic Efficacy of Carbon Ion Radiotherapy in Prostate Cancer
Speaker: Q. Yu, China

09:40 - 09:50
O 112: MRI Radiomic Features to Predict Treatment Response in Carbon Ion Treated Prostate Cancer Patients
Speaker: S. Wu, China

09:50 - 10:00
O 113: Proteogenomic analysis of bystander effects in chondrosarcoma cells co-cultured with chondrocytes
Speaker: Y. Saintigny, France

08:30 - 10:00
Session title: Image Guidance and IGPT / Adaptive Therapy
Session type: Physics

Chair
Brian Winey, USA
Anthony Mascia, USA

08:30 - 08:40
O 114: Online plan adaptation of head and neck IMPT treatments based on cone beam CT imaging and GPU Monte Carlo simulations
Speaker: P. Botas, USA

08:40 - 08:50
O 115: Functional MRI for early changes detection and adaptive planning in proton-therapy: preliminary investigations
Speaker: G. Buizza, Italy

08:50 - 09:00
O 116: A method to evaluate the clinical utility of proton radiography for geometric patient alignment.
Speaker: M. Pankuch, USA

09:00 - 09:10
O 117: Online IMPT adaptation using fast, automatic and robust dose restoration
Speaker: J. Guillaume, Belgium

09:10 - 09:20
O 118: Short-lived positron emitters for in-beam Positron Emission Tomography (PET) verification of helium therapy
Speaker: I. Ozemelam, Netherlands
09:20 - 09:30
O 119: Transducer specifications for thermosacoustic range verification of pencil beams delivered by a synchrocyclotron
Speaker: S. Patch, USA

09:30 - 09:40
O 120: Prompt Gamma Spectroscopy for range control with CeBr3: enhanced spectra detection for proton and carbon beams
Speaker: R. DAL BELLO, Germany

09:40 - 09:50
O 121: Virtual 4DCT for Image Guided Proton Therapy of Moving Tumors
Speaker: L. Lin, USA

09:50 - 10:00
O 122: Investigation of helium as a range probe in carbon ion therapy
Speaker: C. Graeff, Germany

10:30 - 12:00
Session title: CNS / Eye
Session type: Clinics
Chair
NN

10:30 - 10:40
O 123: Phase I/II randomized study of proton beam irradiation with anti-vascular endothelial growth factor for exudative age-related macular degeneration
Speaker: K. Mishra, USA

10:40 - 10:50
O 124: Treatment of conjunctival carcinomas
Speaker: J. Thariat, France

10:50 - 11:00
O 125: Eye tracking system for patient positioning in ocular proton therapy
Speaker: R. Via, Italy

11:00 - 11:10
O 126: Hyperfractionated high dose proton beam radiotherapy for clival chordomas in close proximity to the brainstem
Speaker: K. Tsuboi, Japan

11:10 - 11:20
O 127: Long-term results of hypo fractionated proton therapy for choroidal Haemangiomas
Speaker: F. Meniai-Merzouki, France

11:20 - 11:30
O 128: Proton therapy for iris melanoma : a series from Institute Curie Proton therapy Center
Speaker: R. Dendale, France
11:30 - 11:40  
**O 129: Increase of pseudoprogression and treatment related effects in low-grade glioma patients treated with proton radiation and temozolomide**  
**Speaker:** M. Dworkin, USA

11:40 - 11:50  
**O 130: Patterns of care in proton beam radiotherapy for clival chordoma**  
**Speaker:** L. Pater, USA

11:50 - 12:00  
**O 131: Proton therapy for low grade gliomas: A prospective Swedish multicentre study**  
**Speaker:** P. Witt Nystrom, Sweden

10:30 - 12:00  
**Session title:** Treatment Planning  
**Session type:** Physics

**Chair**  
NN

10:30 - 10:40  
**O 132: Clinical application of dual-energy computed tomography improves stopping-power prediction**  
**Speaker:** P. Wohlfahrt, Germany

10:40 - 10:50  
**O 133: Using realistic and animal tissue phantoms to validate the RayStation Monte Carlo dose calculation algorithm.**  
**Speaker:** N. Schreuder, USA

10:50 - 11:00  
**O 134: Harmonization of the treatment planning approach for head-and-neck cancer using pencil beam scanning: First report of the IPACS collaboration group**  
**Speaker:** M. Stock, Austria

11:00 - 11:10  
**O 135: Testing dose calculations with stopping power ratio images constructed from dual-energy CT in a commercial treatment planning system**  
**Speaker:** S. Mossahebi, USA

11:10 - 11:20  
**O 136: Experimental validation of dual energy CT based proton stopping power ratio estimation in organic tissues**  
**Speaker:** V. Taasti, Denmark

11:20 - 11:30  
**O 137: Radiation dose painting with protons vs. photons for head-and-neck cancer**  
**Speaker:** B. SMULDERS, Denmark

11:30 - 11:40  
**O 138: Alignment and tracking algorithms for the MIMOSA28 detectors for ion radiotherapy**  
**Speaker:** C.A. Reidel, Germany
11:40 - 11:50
O 139: Feasibility Evaluation of Proton-based, Spatially Fractionated Radiotherapy (SFRT) using a GRID Technique
Speaker: J. YU, USA

11:50 - 12:00
O 140: MR-only IMPT planning for prostate cancer: a proof of concept.
Speaker: N. Depauw, USA

12:00 - 12:30
Session title: Closing Word, Announcement for PTCOG 58
Session type: Special Session

Chair
Jay Flanz, USA