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ESTRO



EUROPEAN Society for Hyperthermic Oncology

36th Annual
Meeting

6–8
NOVEMBER

2024

MALAGA
SPAIN

PROGRAMME



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Venue

School of medicine
Campus Teatinos
Blvr. Louis Pasteur, 32 | 29010 Málaga, Spain

Date

6–8 November 2024

Congress website

www.esho-congress.eu

Scientific organiser

European Society for Hyperthermic Oncology (ESHO)
www.esho.info



Co-organising societies

Spanish Medical Physics Society (SEFM)
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GENERAL INFORMATION

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PROGRAMME OVERVIEW | WEDNESDAY, 6 NOVEMBER

Auditorium (Aula magna)

Aula 5

09:00–14:00

Workshops – Educational sessions

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09:00–10:30

ESHO Technical committee

p. 8

10:30–11:30

ICHO 2025 Programme committee

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12:00–14:00

ESHO Board meeting

p. 8

14:30–15:30

General assembly ESHO

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15:45–17:45

Spanish session – The future of hyperthermia in Spain & international experiences in hyperthermia

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18:00–18:30

Opening ceremony

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Plenary session

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20:00–20:30

Welcome cocktail

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Session 1 Basic research in hyperthermia: biological-immune response p. 11	Session 2 Capacitive hyperthermia p. 12
11:00–12:30	11:00–12:30
Session 3 Technology developments p. 14	Session 4 Superficial hyperthermia p. 15
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Session 5 Quality assurance: thermometry, treatment planning, image guide p. 17	
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Session 6 Clinical applications: radio-chemo-immunotherapy p. 18	
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Session 7 Ongoing clinical trials and recent results	Session 8 HIPEC-HIFU
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11:00–12:30	11:00–12:30
Session 9 Nanotechnology and hyperthermia	Session 10 Clinical practice in hyperthermia
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14:00–15:00
Session 11 Roundtable – Legal regulation of the clinical application of hyperthermia
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15:15–16:15
Poster session 2
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17:00–17:30
Closing conference Future of hyperthermia: Immunotherapy
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17:30–18:30
Award ceremony & closing
p. 27

19:30–23:30
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Industrial symposium
Poster session
Assemblies
Scientific session
Keynote lecture
Social programme
Special session
Opening, Awards, Closing
Workshop

09:00–14:00	Workshops – Educational sessions
Aula magna	
09:00–09:40	Thermosensitive liposomes L. Lindner (Munich/DE), T. ten Hagen (Rotterdam/NL)
09:40–10:20	Introduction to temperature monitoring and MR-guided deep hyperthermia S. Curto (Rotterdam/NL)
10:20–10:50	Break
10:50–11:30	Treatment planning H. P. Kok (Amsterdam/NL)
11:30–12:10	HT technology development and implementation in the medical triangle M. Paulides (Eindhoven/NL)
12:10–12:40	Break
12:40–13:20	The medical physicist role in modern hyperthermia P. Granton (Rotterdam/NL)
13:20–14:00	State of the art on ablation P. Prakash (New York/US)
09:00–10:30	ESHO Technical committee
Aula 5	
10:30–11:30	ICHO 2025 Programme committee
Aula 5	
12:00–14:00	ESHO Board meeting
Aula 5	
14:30–15:30	General assembly ESHO
Aula 5	

Sensius



balanced treatment



BALANCING EFFICACY AND QUALITY OF LIFE

Fully integrated workflow



- 15:45–17:45 **Spanish session – the future of hyperthermia in Spain & international experiences in hyperthermia**
Aula magna
Chair D. Ortega (Cádiz/ES), J. Contreras (Málaga/ES)
- 15:45–16:45 **Spanish experiences in hyperthermia**
- 16:45–17:45 **European experiences in hyperthermia**
E. Stutz (Bern/CH), J. Crezee (Amsterdam/NL), R. D. Issels (Munich/DE)
G. C. van Rhoon (Rotterdam/NL)
- 18:00–18:30 **Opening ceremony**
Aula magna
Chair J. Contreras (Málaga/ES), D. Ortega (Cádiz/ES), J. Crezee (Amsterdam/NL)
- 18:00–18:30 **Opening words**
P. Lara, J. Contreras (Málaga/ES), D. Ortega (Cádiz/ES)
J. Crezee (Amsterdam/NL)
- 18:30–20:00 **Plenary session**
Aula magna
Chair D. Ortega (Cádiz/ES), J. Contreras (Málaga/ES)
- 18:30–19:15 **What should be the role of hyperthermia in modern multidisciplinary oncology?**
KL-01 F. Guedea Edo (Barcelona/ES)
- 19:15–20:00 **Debate**
KL-02 F. Guedea Edo (Barcelona/ES), D. Guirado (Madrid/ES)
J. A. Virizuela (Sevilla/ES)
- 20:00–20:30 **Welcome cocktail (see page 28)**
Industry exhibition and terrace

08:30–09:00	Keynote lecture 1
Aula magna	
Chair	M. Arangüena Peñacoba (Barcelona/ES), G. C. van Rhoon (Rotterdam/NL)
08:30–09:00	State of the art of Hyperthermia
KL-03	S. Maluta (Verona/IT)
09:00–10:30	Session 1 – Basic research in hyperthermia: Biological-immune response
Aula magna	
Chair	P. Lara (Las Palmas/ES), U. Gaipl (Erlangen/DE)
09:00–09:20	Pancreatic cancer - clinical results and future developments
IT-01	R. D. Issels (Munich/DE)
09:20–09:32	Fever-range hyperthermia restores sensitivity to anti-PDL1 therapy in pancreatic cancer by promoting mitotic catastrophe via deSUMOylation and cGAS-STING activation
OP-01	<u>G. Gong</u> , N. Li, J. He, M. Chen, J. Yu, R. Wang (Dalian/CN)
09:32–09:44	Cell death kinetics after combined treatment of breast cancer cells with heat and radiation
OP-02	<u>S. Scheidegger</u> (Winterthur/CH), A. Sengedorj (Erlangen/DE) S. Mingo Barba (Winterthur/CH), U. S. Gaipl (Erlangen/DE)
09:44–09:56	Hyperthermia-mediated immunogenic changes increase susceptibility of colorectal cancer metastases to immunotherapy
OP-03	M. Tasker, R. Uzana, G. Lahat, <u>E. Nizri</u> (Tel-Aviv/IL)
09:56–10:08	Effect of photothermal therapy with gold nanoparticles conjugated with long chains of hyaluronic acid in an intracranial murine glioblastoma model
OP-04	<u>J. Domingo Díez</u> (Pozuelo de Alarcon/ES), A. Foti, C. Satriano (Catania/IT) L. Marrodán Bretón, Ó. Casanova Carvajal (Pozuelo de Alarcon/ES) R. Martínez Murillo (Madrid/ES), <u>J. J. Serrano Olmedo</u> <u>M. Ramos Gómez</u> (Pozuelo de Alarcon/ES)

- 10:08–10:20
OP-05 **Uncomplicated tumor control probability of hyperthermia plus radiotherapy treatments based on murine in-vivo data**
S. Mingo Barba (Winterthur, Fribourg/CH), P. M. Sinha, C. A. Folefac
M. R. Horsman (Aarhus/DK), M. Lattuada (Fribourg/CH)
R. M. Füchslin (Winterthur/CH, Venice/IT), A. Petri-Fink (Fribourg/CH)
S. Scheidegger (Winterthur/CH)
- 10:20–10:22
FP-01 **Morphologic and molecular dissection of apoptotic cell death induced by magnetic fluid hyperthermia on cervical cancer cells HeLa.**
K. Shah, H. Patel, K. Parekh, N. Jain (Changa/IN)
- 10:22–10:24
FP-02 **Pulsed alternating fields magnetic hyperthermia in combination with chemotherapy as a cancer treatment for glioblastoma multiform: An In Vitro and In Silico study**
L. Souiade, M. R. Rodríguez García (Pozuelo de Alarcon/ES)
T. Samaras (Thessaloniki/GR), D. Rodrigues (Baltimore, MD/US)
J. J. Serrano Olmedo, M. Ramos Gómez (Pozuelo de Alarcon/ES)
- 10:24–10:26
FP-03 **In vitro modeling of hyperthermic enhancement of immunotherapy in melanoma**
K. Kopec, N. DeSouza, D. Quaranto, T. Jarboe, M. Carnazza, J. Geliebter
R. K. Tiwari, M. D. Hurwitz (Valhalla, NY/US)
- 10:26–10:28
FP-04 **Use of hyperthermia to treat lymphomas: Results of a systematic literature review**
M. Scharr, F. Damm, P. Krah, A. Dieper, P. D. Veltsista, A. Hansch, M. Beck
D. Gerster, A.-C. Giovannelli, L. Bullinger, D. Zips, P. Ghadjar (Berlin/DE)
- 10:28–10:30
FP-05 **Enhancement of the effectiveness of heat treatments in cells exposed to inhibitors of heat shock transcription factor 1**
N. Vilaboá, M. de Mesa, R. Garrido-Punzano, M. Mendiola (Madrid/ES)
R. Voellmy (La Tour-de-Peilz/CH)
- 09:00–10:30
Aula 5
Chair **Session 2 – Capacitive hyperthermia**
I. Toscas (Barcelona/ES), P. Ghadjar (Berlin/DE)
- 09:00–09:20
IT-02 **Feasibility of capacitive Hyperthermia in Spain**
J. Contreras (Málaga/ES)

- 09:20–09:32
OP-06 **Benefit in local control for patients with oligoprogressive melanoma treated with radiotherapy combined with locoregional hyperthermia**
A. Borkowska (Warszawa/PL), M. Spalek (Warszawa, Warsszawa/PL)
P. Chmiel, M. Telejko, P. Teterycz, P. Rutkowski (Warszawa/PL)
- 09:32–09:44
OP-07 **Modulated Electrohyperthermia (MEHT, Oncothermia) as an effective and safe additional radiosensitizer for standard chemoradiation in Locally Advanced Cervical Cancer (LACC) IIb-IVa FIGO patients**
B. Leonid (Tel Aviv/IL), Y. Kreynina (Moscow, Nizhny Novgorod/RU)
M. Kaskulova (Nizhny Novgorod/RU), V. Solodky, L. Shevchenko
Y. Mashkova, S. Isaeva (Moscow/RU)
- 09:44–09:56
OP-08 **Optimising protocols for the use of modulated electro hyperthermia as a radiosensitiser**
C. Minnaar, K. Dada (Johannesburg/ZA)
- 09:56–10:08
OP-09 **Radiosurgery reirradiation of high grade glioma in combination with modulated electro-hyperthermia: Preliminary results of a prospective study**
E. Arrojo (Madrid, Santander/ES), M. Sallabanda, D. Arribas, Y. Hayde
M. C. Vaca, K. Sallabanda (Madrid/ES)
- 10:08–10:10
FP-06 **Modulated electro hyperthermia (mEHT) as single agent or combo-chemotherapy versus palliative chemotherapy in advanced pancreatic cancer: A multicenter retrospective observational comparative study**
G. Fiorentini (Pesaro/IT), G. Ranieri (Bari/IT), M. Bonucci (Roma/IT)
S. Bonanno (Siracusa/IT), G. Cristina (Merano/IT), R. Lodico (Roma/IT)
D. Sarti (Urbino/IT)
- 10:10–10:12
FP-07 **Oncology hyperthermia on pulmonary carcinoma**
N. Pantano (Palermo/IT)
- 10:12–10:14
FP-08 **Oncologic hyperthermia treatment on papillary urothelial carcinoma of low grade**
N. Pantano (Palermo/IT)
- 10:14–10:16
FP-09 **Modulated electro-hyperthermia and radiotherapy, a multimodal treatment approach in a paediatric patient with diffuse intrinsic pontine glioma**
C. Minnaar (Johannesburg/ZA), K. Bennet, T. Naidoo (Parktown/ZA)

11:00–12:30 Aula magna Chair	Session 3 – Technology developments S. Curto (Rotterdam/NL), H. Dobsicek Trefna (Göteborg/SE)
11:00–11:20 IT-03	Technology overview and recent advances in the delivery, monitoring and control of hyperthermia treatments D. Rodrigues (Baltimore, MD/US)
11:20–11:32 OP-10	Optimal operating frequencies for deep microwave hyperthermia – Are we missing the sweet spot? <u>I. Sykkö</u> , A. Nguyen, R. Nilsson (Gothenburg/SE) M. Zanoli (Gothenburg/SE, Rotterdam/NL) K. Blomgren, H. Dobšáček Trefná (Gothenburg/SE)
11:32–11:44 OP-11	Integrating MR coils with heating antennas for hyperthermia of the intact breast: A simulation study <u>A. de Boer</u> , I. Androulakis, M. Zanoli (Rotterdam/NL) K. Sumser (Eindhoven/NL), R. Forner (Hamburg/DE), R. Nout (Rotterdam/NL) M. Paulides (Rotterdam, Eindhoven/NL), S. Curto (Rotterdam/NL)
11:44–11:56 OP-12	Effect of power delivery algorithms on microwave ablation zone extents: Results from computational modeling and experiments <u>P. Prakash</u> (New York, NY/US)
11:56–12:08 OP-13	A 12-channel phased array microwave source for targeted delivery of hyperthermia treatment <u>R. Choudhary</u> , M. R. Subash Ramu, K. Arunachalam (Chennai/IN)
12:08–12:20 OP-14	Electromagnetic wavefield inversion for (near) real-time monitoring of breast location and electric field distribution during breast hyperthermia treatment <u>A. Kanagaratnam</u> (Rotterdam, Delft/NL), I. Androulakis, M. Zanoli G. C. van Rhoon, S. Curto (Rotterdam/NL), K. van Dongen (Delft/NL)
12:20–12:22 FP-10	Different hydration status of malignant tumors versus corresponding normal tissues and its relevance for hyperthermia using electromagnetic irradiation <u>H. Piazena</u> (Berlin/DE), M. Notter (Bern/CH), P. Vaupel (Freiburg/DE)

- 12:22–12:24
FP-11 **Use of radiofrequency electromagnetic fields applied by capacitive hyperthermia for glioblastoma therapy**
D. Gerster, R. Muratoglu, P. Krah, A. Hansch, A. Dieper, D. Kaul
P. D. Veltsista, J. Onken, M. Misch, J. Nadobny, D. Zips
P. Ghadjar (Berlin/DE)
- 12:24–12:26
FP-12 **Ultra-wideband, high-power hyperthermia system with precision control of steering parameters**
R. Nilsson (Göteborg/SE), M. Zanoli (Göteborg/SE, Rotterdam/NL)
H. Fischer (Eindhoven/NL), M.-A. Pagneux (Marseille/FR)
H. Dobsicek Trefna (Göteborg/SE)
- 12:26–12:28
FP-13 **Pareto optimization for prostate cancer focal laser ablation**
A. Andreozzi, M. Iasiello (Napoli/IT), G. Napoli, G. P. Vanoli (Campobasso/IT)
- 11:00–12:30
Aula 5
Chair **Session 4 – Superficial hyperthermia**
I. Toscas (Barcelona/ES), E. Stutz (Bern/CH)
- 11:00–11:20
IT-04 **The potential of wIRA-hyperthermia in extended superficial tumors**
M. Notter (Bern/CH)
- 11:20–11:32
OP-15 **Background, study design and treatment protocol of the upcoming TANCA-I trial – Thermoradiotherapy for locally advanced head and neck cancer patients-a phase I trial**
M. Kroesen (Rotterdam, Delft/NL), J. Elbers, M. Franckena, L. Tans
G. Verduijn, E. Van Meerten, H. Polinder-Bos, J. Hardillo, A. Rink
A. Sewnaik, B. Jonker, E. Van Werkhoven (Rotterdam/NL)
M. Paulides (Eindhoven, Rotterdam/NL), M. Zanoli, P. Granton, S. Curto
R. Nout (Rotterdam/NL)
- 11:32–11:44
OP-16 **Multimodality therapy for high-risk soft tissue sarcomas of the trunk and limbs: evaluation of toxicity, efficacy and long-term outcomes of hyperthermia in combination with preoperative radiotherapy and chemotherapy**
P. Trecca, M. Fiore, G. D'Ercole, G. M. Petrianni, S. Minuti, C. Greco
E. Ippolito, S. Valeri, B. Vincenzi, S. Ramella (Rome/IT)

- 11:44–11:56
OP-17 **The predictive value of hyperthermia temperature parameters for locoregional control in patients with locoregional recurrent breast cancer treated with postoperative re-irradiation and hyperthermia – an evaluation of invasive versus skin thermometry**
C. P. Tello Valverde, H. P. Kok, W. Kolff, B. J. Slotman, J. Crezee (Amsterdam/NL)
- 11:56–12:08
OP-18 **Impact of uncertainties in the delivery of microwave hyperthermia treatments for head and neck cancer**
R. Kwakernaak, M. Zanoli (Rotterdam/NL), Z. Perko (Delft/NL), K. Sumser M. Paulides (Eindhoven/NL), S. Curto (Rotterdam/NL)
- 12:08–12:20
OP-19 **The HISTOTHERM study: wIRA-hyperthermia and hypofractionated radiation therapy for locally recurrent breast cancer – preliminary results**
A. R. Thomsen, J. Sahlmann, P. Bronsert, P. Vaupel, A.-L. Grosu (Freiburg/DE) J.-O. Gebbers (Bern/CH), A.-M. Lüchtenborg (Freiburg/DE)
- 12:20–12:22
FP-15 **First measurements with a phantom for infrared hyperthermia devices according to ESHO guidelines**
D. Marder, P. Janssen, O. Timm, R. A. Hälg (Aarau/CH)
A. R. Thomsen (Freiburg/Brsg/DE), P. Zucchetti, W. Arnold (Luzern/CH)
H. Schneider, A. Ademaj, E. Puric, O. Riesterer (Aarau/CH)
- 12:22–12:24
FP-16 **Reirradiation and hyperthermia in patients with recurrent previously irradiated angiosarcoma in head and neck**
T. Lushchaeva, V. Vasilevska, D. Milanovic, D. Medenwald (Magdeburg/DE)
- 12:24–12:26
FP-17 **Characterization of 434 MHz CFMA applicators for superficial hyperthermia for various realistic curvature and bolus thickness scenarios**
T. D. Herrera, R. Zweije, J. Crezee, H. P. Kok (Amsterdam/NL)
- 12:26–12:28
FP-18 **Fast tumor volume reduction in fungating bulky breast cancer following combined palliative radiotherapy and hyperthermia: Case reports of two patients**
M. Blatti, E. Riggenbach, M. Fürstner, M. Reist, N. Bachmann, B. Shrestha M. Rabaglio, C. Rauh, D. M. Aebersold, K. Lössl, E. Stutz (Bern/CH)
- 12:28–12:30
FP-19 **Impact of Schottky diodes feeding traces on E-field characterization of 434MHz hyperthermia applicators**
D. Phal, K. Sumser (Eindhoven/NL), I. Androulakis, S. Curto (Rotterdam/NL) M. Paulides (Eindhoven/NL)

- 12:45–13:45 **Industrial symposium**
Aula magna
- 12:45–13:00 **Whole-Body Thermal Therapy for the treatment of pancreatic cancer**
ElmediX NV
J.-P. Bogers (Mechelen/BE)
- 14:00–15:30 **Session 5 – Quality assurance: Thermometry, treatment planning, image guide**
Aula magna
Chair F. Navarro (Málaga/ES), H. P. Kok (Amsterdam/NL)
- 14:00–14:20 **Hyperthermia quality assurance: Lessons learned, and challenges ahead**
IT-05
H. Dobsicek Trefna (Göteborg/SE)
- 14:20–14:32 **Harmonization of quality assurance and superficial hyperthermia-treatment delivery in The Netherlands – nationwide multicenter monitoring and data-evaluation of thermometry procedures**
OP-20
A. Kanagaratnam, A. Ameziane (Rotterdam/NL), R. Zweije (Amsterdam/NL)
M. van Wieren (Tilburg/NL), M. Franckena, C. Carrapiço-Seabra, A. Rink
P. Granton (Rotterdam/NL), C. P. Tello Valverde
D. de Vries-Huizing (Amsterdam/NL), M. Essers (Tilburg/NL), L. Wurfbain
D. van den Bongard (Amsterdam/NL), A. Bakker (Utrecht/NL)
J. Crezee (Amsterdam/NL), S. Curto (Rotterdam/NL)
- 14:32–14:44 **Practical use of on-line adaptive treatment planning considering uncertainties in tissue parameters**
OP-21
H. P. Kok, P. Kok, J. Crezee (Amsterdam/NL)
- 14:44–14:56 **Imaging wide-band dielectric tissue properties through quantitative multinuclear MRI tissue composition assessment (tissue composition electrical properties tomography): A feasibility study**
OP-22
L. Barendsz, K. Sumser (Eindhoven/NL), D. Y. E. Tse (Maastricht/NL)
J. F. A. Jansen (Eindhoven, Maastricht/NL), R. M. C. Mestrom (Eindhoven/NL)
M. Paulides (Eindhoven, Rotterdam/NL)
- 14:56–15:08 **A framework for designing optimal multi-echo PRFS thermometry**
OP-23
M. Paulides, S. Nouwens, K. Sumser, M. Heemels (Eindhoven/NL)

- 15:08–15:20
OP-24 **Online hyperthermia treatment planning and delivery – combining microwave imaging and heating**
M. Zanoli (Rotterdam/NL, Gothenburg/SE), M. Jansen (Rotterdam/NL)
H. Dobšiček Trefná (Gothenburg/SE), K. Sumser, M. Paulides (Eindhoven/NL)
S. Curto (Rotterdam/NL)
- 15:20–15:22
FP-20 **Effect of positioning on SAR and temperature in head and neck microwave hyperthermia**
E. van Wesel (Rotterdam, Eindhoven/NL), S. Curto
G. C. van Rhooen (Rotterdam/NL), M. Paulides (Rotterdam, Eindhoven/NL)
- 15:22–15:24
FP-21 **Implementation of surrogate optimization algorithm for hyperthermia treatment**
M. Cerna, T. Drizdal (Kladno/CZ)
- 15:24–15:26
FP-22 **Hazard of biliary stent heating in radiative deep regional hyperthermia (RHT)**
S. Abdel-Rahman, M. Göger-Neff, B. Zilles, R. D. Issels, D. Di Gioia
L. Lindner (Munich/DE)
- 15:26–15:28
FP-23 **Muscle equivalent tissue material for superficial hyperthermia quality assurance**
A. Kanagaratnam, C. Carrapiço-Seabra, S. Curto (Rotterdam/NL)
- 15:28–15:30
FP-24 **Experimental measurement of the specific absorption rate of magnetic nanoparticles in magnetic hyperthermia when using non-harmonic asymmetric magnetic field waveforms**
M. R. Rodríguez García, D. Pinto Llorente, L. Marrodán Bretón
I. Martínez Ramírez, C. Alcaide León, M. Ramos Gómez
J. J. Serrano Olmedo (Pozuelo de Alarcon/ES)
- 15:45–17:15
Aula magna
Chair **Session 6 – Clinical applications: Radio-chemo-immunotherapy**
J. C. Quero (Sevilla/ES), M. Kroesen (Rotterdam/NL)
- 15:45–16:05
IT-06 **Hyperthermia as an adjunctive treatment in the treatment of tumors: review of studies**
G. Fiorentini (Pesaro/IT)

- 16:05–16:17
OP-25 **The impact of thermal dose on pathological complete response in locally advanced rectal cancer patients treated with deep regional hyperthermia combined with neoadjuvant chemoradiotherapy: A multi-institutional propensity score matched analysis**
A. Adema^j (Aarau, Zürich/CH), O. J. Ott (Erlangen/DE), C. Gani (Tübingen/DE)
O. Dahl (Bergen/NO), E. Puric (Aarau/CH), B. Frey, M. Schmidt (Erlangen/DE)
D. Marder (Aarau/CH), R. A. Hälgl (Aarau, Zürich/CH), J. Crezee (Amsterdam/NL)
R. Fietkau (Erlangen/DE), O. Riesterer (Aarau/CH)
- 16:17–16:29
OP-26 **Feasibility and tolerance of deep hyperthermia combined with radiochemotherapy in locally advanced rectal cancer – first spanish experience**
B. Salas-Salas, L. Ferrera-Alayón, A. A. Alayón Afonso, M. Sanchez-Carrascal
L. Lopez Molina, M. R. Elzo Vega, R. A. Hernandez-Santana
M. Lloret Saez-Bravo (Las Palmas de Gran Canaria/ES)
- 16:29–16:41
OP-27 **Hyperthermia enhances spatially-fractionated radiation and immunotherapy in pre-clinical tumor models**
S. V. Jenkins, A. Jamshidi-Parsian, A. Brint, H. Campbell, R. P. M. Dings
R. Griffin (Little Rock, AR/US)
- 16:41–16:53
OP-28 **Phase I study of THE001 (DPPG2-TSL-DOX) combined with regional hyperthermia in patients with locally advanced or metastatic soft tissue sarcoma**
D. Di Gioia (Munich/DE), P. Reichardt (Berlin/DE), S. E. Güler
G. Schuebbe (Munich/DE), S. Ghani (Berlin/DE), Z. Haramiova
F. Hermann (Martinsried/DE), L. Lindner (Munich, Martinsried/DE)
- 16:53–16:55
FP-25 **Enhancing quality of life in bladder cancer patients – leveraging hyperthermia and chemotherapy**
S. Badzgaradze, M. Kutchava (Kutaisi/GE)
- 16:55–16:57
FP-26 **Numerical study of hyperthermia application for head and neck tumour with varying complexity of the human model**
M. Di Cristofano, M. Cavagnaro (Rome/IT)
- 16:57–16:59
FP-27 **Synergistic nanoparticle-mediated therapies: Enhancing antitumor efficacy through immune modulation and targeted hyperthermia**
D. Sharma (Mohali/IN)

- 16:59–17:01
FP-28 **Effect of biocompatible polyacrylic acid-coated iron oxide-based magnetic fluid in inducing programmed cell death in breast cancer cells MCF-7 subsequent to magnetic fluid hyperthermia**
N. Jain, T. Patel, K. Parekh (Anand/IN)
- 17:01–17:03
FP-29 **Biological modeling shows thermal enhancement of radiation dose in a pediatric sarcoma patient treated with proton beam therapy and regional deep hyperthermia**
M. De Lazzari (Göteborg/SE), R. Wessalowski (Duesseldorf/DE)
S. Karkavitsas (Munich/DE), O. Mils (Duesseldorf/DE), U. Kontny (Aachen/DE)
B. Timmermann, R. Richter (Essen/DE), D. Rodrigues (Baltimore, MD/US)
H. Dobšlček Trefná (Göteborg/SE)
- 17:15–18:15 **Poster session 1**
Poster exhibition
- 18:15–18:45 **ESHO Pyrexar award session**
Aula magna
Chair J. Crezee (Amsterdam/NL)

- 08:30–09:00 **Keynote lecture 2**
Aula magna
Chair M. Arangüena Peñacoba (Barcelona/ES), J. Crezee (Amsterdam/NL)
- 08:30–09:00 **Hyperthermia. Short overview and hidden gems**
KL-04 J. van der Zee (Rotterdam/NL)
- 09:00–10:30 **Session 7 – Ongoing clinical trials and recent results**
Aula magna
Chair M. Lloret Saez-Bravo (Las Palmas de Gran Canaria/ES)
R. Wessalowski (Duesseldorf/DE)
- 09:00–09:20 **The role of hyperthermia in rectal cancer:**
IT-07 **Promising results, limitations and an upcoming randomized phase 3-trial**
O. J. Ott (Erlangen/DE)
- 09:20–09:32 **Hyperthermia clinicals trials in Catalan Institute of Oncology: Initial results**
OP-29 M. Arangüena Peñacoba (Barcelona/ES), J. Jové Teixido
S. Villà Freixa (Badalona/ES), M. A. Eraso Urién (Girona/ES)
C. Gutiérrez Miguélez, E. Martínez Pérez, H. Pérez Montero
J. González Viguera, L. Asiáin Azcárate, J. Valera Muñoz, M. C. Siria Lóez
J. Martínez González, P. Fernández López, M. Ventura Bujalance
F. Guedea Edo (Barcelona/ES)
- 09:32–09:44 **Interim results of the european registry study for the treatment of recurrent**
OP-30 **glioblastoma (2019-2023) using the NanoTherm Therapy System (NTTS)**
A. Jordan (Poznan/PL, Zwickau, Muehlhausen/Ruhr/DE, Lublin/PL)
- 09:44–09:56 **A pilot study of chemoimmunotherapy combined with deep hyperthermia**
OP-31 **and spatially-fractionated radiotherapy in advanced biliary tract cancer**
J. Molitoris, D. Rodrigues, K. Baker, C. Eggleston, S. Mossahebi, M. Zakhary
A. Ciner (Baltimore, MD/US)
- 09:56–10:08 **A randomized phase III trial comparing trabectedin to trabectedin combined**
OP-32 **with regional hyperthermia in patients with pre-treated soft tissue sarcoma:**
HyperTET a German Interdisciplinary Sarcoma Group (GISG) trial
G. Schuebbe, L. Lindner, D. Di Gioia, Y. Xu, E. Kampmann, S. Abdel-Rahman
W. Kunz, T. Roshchyna, R. Fenderle, V. Bücklein (Munich/DE)
P. Reichardt (Berlin/DE), D. Pink (Bad Saarow/DE), A. Flörcken (Berlin/DE)
R. Fietkau (Erlangen/DE), U. Mansmann, R. D. Issels (Munich/DE)

- 10:08–10:10
FP-30 **Neoadjuvant concurrent gemcitabine and radiotherapy for soft tissuesarcoma: Assessment of toxicity and efficacy**
P. Trecca, C. Greco, M. Fiore, E. Ippolito, C. Demofonti, S. Minuti, S. Valeri
B. Vincenzi, S. Ramella (Rome/IT)
- 09:00–10:30
Aula 5 **Session 8 – HIPEC-HIFU**
Chair C. Ramirez (Málaga/ES), J. Crezee (Amsterdam/NL)
- 09:00–09:20
IT-08 **State-of-the-Art in Intraperitoneal Hyperthermia: Current Indications and Evolving Controversies**
J. J. Segura-Sampedro (Madrid/ES)
- 09:20–09:32
OP-33 **Feasibility and safety of MR guided high intensity focused ultrasound-induced hyperthermia in large volume near bone structure**
M. Ayary, H. Grüll, J. Lindemeyer (Cologne/DE)
- 09:32–09:44
OP-35 **Temperature optimization for locoregional hyperthermia accounting for tissue-property uncertainties using polynomial chaos expansion**
T. D. Herrera, J. Groen, J. Crezee, H. P. Kok (Amsterdam/NL)
- 09:44–09:46
FP-31 **In silico analysis of step-up heating protocols to improve the effectiveness of oxaliplatin-based HIPEC**
P. Namakshenas, J. Crezee, A. L. Oei, H. P. Kok (Amsterdam/NL)
- 09:46–09:48
FP-32 **Advancement in the development of a modular, human body-mimicking phantom with active thermoregulation capabilities**
L. Van den Bossche, W. Vertessen, J. Van den Bossche, O. Rudenko
J.-P. Bogers, L. Brancato (Leuven/BE)
- 09:48–09:50
FP-33 **Increasing the quality of life in bladder cancer patients by Heckel-HT3000**
S. Badzgaradze, M. Kutchava (Kutaisi/GE)
- 09:50–09:52
FP-34 **The pleiotropic effects of whole-body hyperthermia in synergizing chemotherapy and enhancing immune response in pancreatic ductal adenocarcinoma**
T. Logghe (Mechelen/BE), R. Colenbier (Antwerp/BE), G. Boulet (Mechelen/BE)
J.-P. Bogers (Mechelen, Antwerp/BE)
- 09:52–09:54
FP-35 **Development of an anticancer tissue adhesive for intraperitoneal chemotherapy as an adjuvant to HIPEC**
J. J. Segura-Sampedro (Madrid/ES), M. T. Perelló-Triasa, A. Rodríguez-Fernández
A. J. Serrano-Muñoz, P. Taulera, J. M. Ramisa, M. Monjoa

- 09:54–09:56
FP-36 **Establishment of a murine model of localised advanced ovarian cancer to test this novel intraperitoneal drug delivery system**
J. J. Segura-Sampedro (Madrid/ES), M. T. Perelló-Triasa, A. Rodríguez-Fernández
A. J. Serrano-Muñoz, P. Taulera, J. M. Ramisa, M. Monjoa
- 09:56–09:58
FP-37 **Does repeated fever-range whole body hyperthermia treatments reduce patient's capacity to rise body temperature?**
J. Moreira Pinto (Lisbon/PT)
- 09:58–10:10
OP-34 **The role of regional deep hyperthermia (RHT) and hyperthermic intraperitoneal chemotherapy (HIPEC) in children and adolescents with disseminated abdominal desmoplastic small round cell tumors (DSRCT)**
R. Wessalowski, C. Staude, K. Harder, O. Mils, D. Klee
C. Matuschek (Duesseldorf/DE), C. Vokuhl (Bonn/DE)
W. T. Knoefel (Duesseldorf/DE)
- 11:00–12:30
Aula magna
Chair **Session 9 – Nanotechnology and hyperthermia**
D. Ortega (Cádiz/ES), L. Lindner (Munich/DE)
- 11:00–11:20
IT-09 **Clinical magnetic hyperthermia - past and present**
Q. Pankhurst (London/GB)
- 11:20–11:32
OP-36 **Local temperature gradients and induced cell death in intracellular magnetic hyperthermia**
A. Millan (Zaragoza/ES), Y. Gu (Zaragoza, Castellón/ES)
R. Pinol (Zaragoza/ES), C. Brites (Aveiro/PT)
R. Moreno-Loshuertos (Zaragoza/ES), J. Zeler (Aveiro/PT, Wroclaw/PL)
A. Martínez, G. Maurin, P. Fernández-Silva, J. Marco-Brualla, P. Téllez
R. Cases, R. Navarro Belsué (Zaragoza/ES), D. Bonvin (Lausanne/CH)
L. D. Carlos (Aveiro/PT)
- 11:32–11:44
OP-37 **Engineering NanoClusters of non-spherical magnetite particles with polydopamine for dual magnetothermal and photothermal therapy**
G. García-García (Almería/ES), G. Iglesias Salto (GRANADA/ES)
- 11:44–11:56
OP-38 **Human-sized quantitative imaging of magnetic nanoparticles with magnetorelaxometry and optically pumped magnetometers**
A. Jaufenthaler (Innsbruck/AT), F. Wiekhorst (Berlin/DE)
D. Baumgarten (Innsbruck/AT)

- 11:56–12:08
OP-39 **Achieving temporal and spatial selectivity in chemotherapy – remote activation of enzyme prodrug therapy**
B. Torres-Herrero (Zaragoza/ES), I. Armenia (Zaragoza/ES, Varesse/IT)
M. Alleva, L. Asín, L. Gutierrez (Zaragoza/ES), C. Ortiz (Montevideo/UY)
J. M. de la Fuente (Zaragoza, MAdrid/ES), L. Betancor (Montevideo/UY)
V. Grazu (Zaragoza, Madrid/ES)
- 12:08–12:20
OP-40 **In silico evaluation of metallic implants safety during magnetic hyperthermia**
D. Ortega (Cádiz, Madrid/ES), I. Rubia-Rodríguez (Lyngby/DK)
A. Arduino, L. Zilberti, O. Bottauscio (Turin/IT)
- 12:20–12:22
FP-38 **Does shape and size of magnetic nanoparticles Influence magnetic fluid hyperthermia? A representative study of Mn_{0.5}Zn_{0.5}Fe₂O₄ ferrite nanoparticles based magnetic fluid**
H. Patel, K. Parekh (Changa/IN)
- 12:22–12:24
FP-39 **Multifunctional plasmonic nanoparticles for combined photothermal therapy and chemotherapy**
O. A. Rosas de la Rosa (Madrid/ES), A. Granja, C. Nunes, S. Reis (Porto/DE)
C. Tavares de Sousa (Madrid/ES)
- 12:24–12:26
FP-40 **Sorbitan ester-based lipid nanospheres containing Fe₃O₄ nanoparticles for magnetic hyperthermia**
J. Eguia-Sanchez, D. Iglesias-Rojas, K. Nader, J. Azkarate-Irigoras,
G. García-García, U. Telleria, A. Martín-San Sebastian, I. Castellanos-Rubio
J. Marquez, I. Badiola, M. Insausti (Leioa/ES)
- 12:26–12:28
FP-41 **A cost-effective air cooled benchtop device to study magnetic hyperthermia in magnetic nanoparticle systems**
Y. Hadadian, L. Dieke, N. Löwa, F. Wiekhorst (Berlin/DE)
- 12:28–12:30
FP-42 **Cutting-edge dual-responsive magnetite nanorods in magneto-photothermal treatment**
Z. Shaterabadi (Granada/ES)
- 11:00–12:30
Aula 5
Chair **Session 10 – Clinical practice in hyperthermia**
A. Rink (Rotterdam/NL), M. Notter (Bern/CH)
- 11:00–11:20
IT-10 **Challenges in terms of clinical workflow, QA and clinical application in the last 2.5 years since the installation of the deep and superficial HT devices**
M. Fürstner (Bern/CH)

- 11:20–11:32
OP-42 **Heating through intact bone cortex with a radiative deep hyperthermia system: A proof-of-concept phantom study**
M. Furstner, A. Ethesam, A. Joosten, M. Künzler, D. M. Aebersold, P. Manser
M. Reist, D. Frauchiger, E. Stutz (Bern/CH)
- 11:32–11:44
OP-43 **Evaluation of magnetic resonance thermometry performance during MR-guided hyperthermia treatment of soft-tissue sarcoma in the pelvis and lower extremities**
M. Göger-Neff, S. Karkavitsas, B. Zilles, M. Kawula (Munich/DE)
K. Sumser (Eindhoven/NL), M. Wadepohl, G. Landry, C. Kurz, W. Kunz
O. Dietrich, L. Lindner (Munich/DE), M. Paulides (Eindhoven/NL)
- 11:44–11:56
OP-44 **Feasibility study for optimizing the treatment of pathological lymph nodes in locally advanced cervical cancer patients treated with radiotherapy and hyperthermia**
A. Rink, E. Meijer, H. Westerveld, Y. Seppenwoolde, M. Franckena, P. Granton
A. Cruz Perdomo, S. Curto (Rotterdam/NL)
- 11:56–12:08
OP-41 **Moderate hyperthermia in Switzerland – a survey among Swiss radiotherapy centers on current practice, obstacles and opportunities of hyperthermia**
N. Bachmann (Bern/CH), E. Puric (Aarau/CH), M. Notter (Bern/CH)
B. Hübenthal (Zürich/CH), W. Arnold (Lucerne/CH)
S. Brodmann (Winterthur/CH), T. Mader (Chur/CH)
F. Martucci (Bellinzona/CH), P. Tsoutsou (Geneva/CH)
J. Crezee (Amsterdam/NL), O. Riesterer (Aarau/CH), E. Stutz (Bern/CH)
- 12:08–12:10
FP-43 **Investigation of non-invasive temperature estimation during hyperthermia treatment under ultrasound image guidance**
M. R. S. Ramu, K. Arunachalam (Tamilnadu/IN), A. K. Thittai (Chennai/IN)
- 12:10–12:12
FP-44 **Italian Society of Oncological Hyperthermia (Società Italiana di Ipertermia Oncologica - SIO) – foundation, activities and future projects to develop thermotherapy and hyperthermia in Italy**
G. Fiorentini (Pesaro/IT), G. Ranieri (Bari/IT), M. Bonucci (Roma/IT)
S. Bonanno (Siracusa/IT), G. Cristina (Merano/IT), R. Lodico (Roma/IT)
D. Sarti (Urbino/IT)

- 12:12–12:14
FP-45 **Occurrence and management of discomfort during deep hyperthermia treatments**
M. L. Fernando, R. de Kroon- Oldenhof, C. P. Tello Valverde, H. P. Kok
C. B. M. van den Broek, K. Brück, E. D. Geijssen, D. de Vries-Huizing
J. Crezee (Amsterdam/NL)
- 12:14–12:16
FP-46 **Impact of air in the rectum on target dose coverage and specific absorption rate during hyperthermia treatments**
J. Popescu, A. Rink, H. Westerveld, M. Franckena, P. Granton
S. Curto (Rotterdam/NL)
- 14:00–15:00
Aula magna
Chair **Session 11 – Roundtable – Legal regulation of the clinical application of hyperthermia**
P. Lara (Las Palmas/ES), R. D. Issels (Munich/DE)
- 14:00–14:12
OP-45 **Evaluation third year of the H2020 HYPERBOOST consortium: Hyperthermia boosting the effect of radiotherapy**
J. Crezee (Amsterdam/NL), S. Curto (Rotterdam/NL)
H. Dobsicek Trefna (Gothenburg/SE), R. Fietkau, B. Frey
U. S. Gaipl (Erlangen/DE), P. Ghadjar (Berlin/DE)
M. R. Horsman (Aarhus/DK), H. P. Kok, P. M. Krawczyk (Amsterdam/NL)
T. Niendorf (Berlin/DE), O. J. Ott (Erlangen/DE), J. Overgaard (Aarhus/DK)
P. Pavoni (Rome/IT), G. C. van Rhoon (Rotterdam/NL)
O. Riesterer (Aarau/CH), S. Scheidegger (Winterthur/CH)
M. Wadepohl (Munich/DE), B. J. Slotman (Amsterdam/NL)
- 14:12–14:24
OP-46 **Reintroducing head and neck hyperthermia treatments using the HyperCollar3D at Erasmus MC; the medical device regulation process and hard- and software enhancements**
A. Rink, M. Kroesen, S. Curto, M. Zanoli (Rotterdam/NL), M. Paulides
K. Sumser (Eindhoven/NL), I. Lieben, D. de Regt, G. C. van Rhoon
P. Granton (Rotterdam/NL)
- 14:24–14:36
OP-47 **Deep hyperthermia and radiotherapy – a promising palliative treatment option for patients with recurrent, bulky tumors**
M. Neesen, N. Bachmann, M. Fürstner, M. Reist, B. Shrestha, E. Riggenbach
H. Hemmatazad, A. Kollar, D. M. Aebersold, C. Ionescu, E. Stutz (Bern/CH)

14:36–14:48 OP-48	Hyperthermia terms and definitions – Initial report from the ASME thermal medicine lexicon subcommittee H. Dobsicek Trefna, H. Dobšiček Trefná (Göteborg/SE), S. Curto (Rotterdam/NL) J. Crezee (Amsterdam/NL), C. Crouch (Knowville, TN/US) G. Shafirstein (Buffalo, NY/US), S. Heckel-Reusser (Esslingen am Neckar/DE) D. Marder, A. Ademaj (Aarau/CH), H. Ring (Minneapolis, MN/US) C. Diederich (San Francisco, CA/US), K. Sumser (Eindhoven/NL) D. Rodrigues (Baltimore, MD/US)
15:30–16:30 Poster exhibition	Poster session 2
17:00–17:30 Aula magna Chair	Closing conference – Future of hyperthermia: Immunotherapy J. Contreras (Málaga/ES), D. Ortega (Cádiz/ES), J. Crezee (Amsterdam/NL)
17:30–18:00 KL-05	Future of hyperthermia: Immunotherapy P. Lara (Las Palmas/ES)
17:30–18:30 Aula magna Chair	Award ceremony & closing J. Contreras (Málaga/ES), D. Ortega (Cádiz/ES), J. Crezee (Amsterdam/NL)
20:30–23:30	Social evening (see page 28)

Welcome cocktail

Wednesday, 6 November, 20:00

Come together over drinks and snacks to enjoy the first evening of the congress in a very special atmosphere. Get in the mood for the ESHO 2024 at the welcome cocktail in the industrial exhibition. Allow yourself interesting conversations with colleagues, old friends and meet new acquaintances.



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Guided tour

Thursday, 7 November | 10 EUR

Get to know Málaga and take part in the guided tour of the city

“Monumental Málaga, a journey through 3000 years of history” tour



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The history of Málaga is very long but we have summarized it in a 2-hour tour, so that you can learn about the most important things that all the civilisations that have passed through here left us as monuments and culture. A perfect tour to see the essentials: Roman Theater, Alcazaba, Museum of Málaga, Cathedral, Calle Larios, Plaza de la Constitución, Church of the Sagrario, Church of Santiago and Plaza de la Merced.

Social evening

Friday, 8 November, 19:30 | 80 EUR

We are happy to welcome you to network at the social evening in 2024. You can expect a relaxed atmosphere, a classic ambience and interesting conversations. Look forward to a typically Spanish evening with Spanish cuisine and a small entertainment programme.



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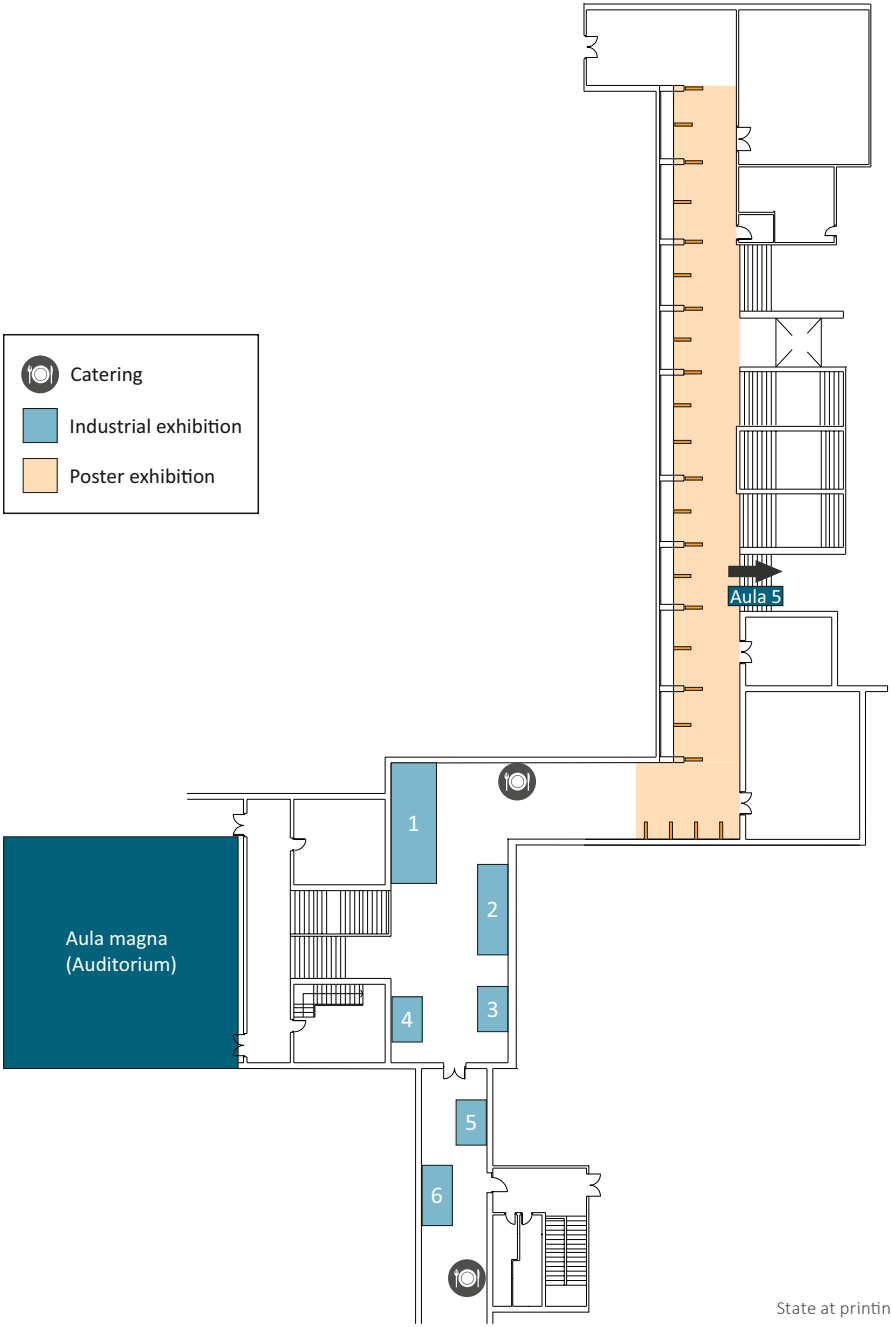
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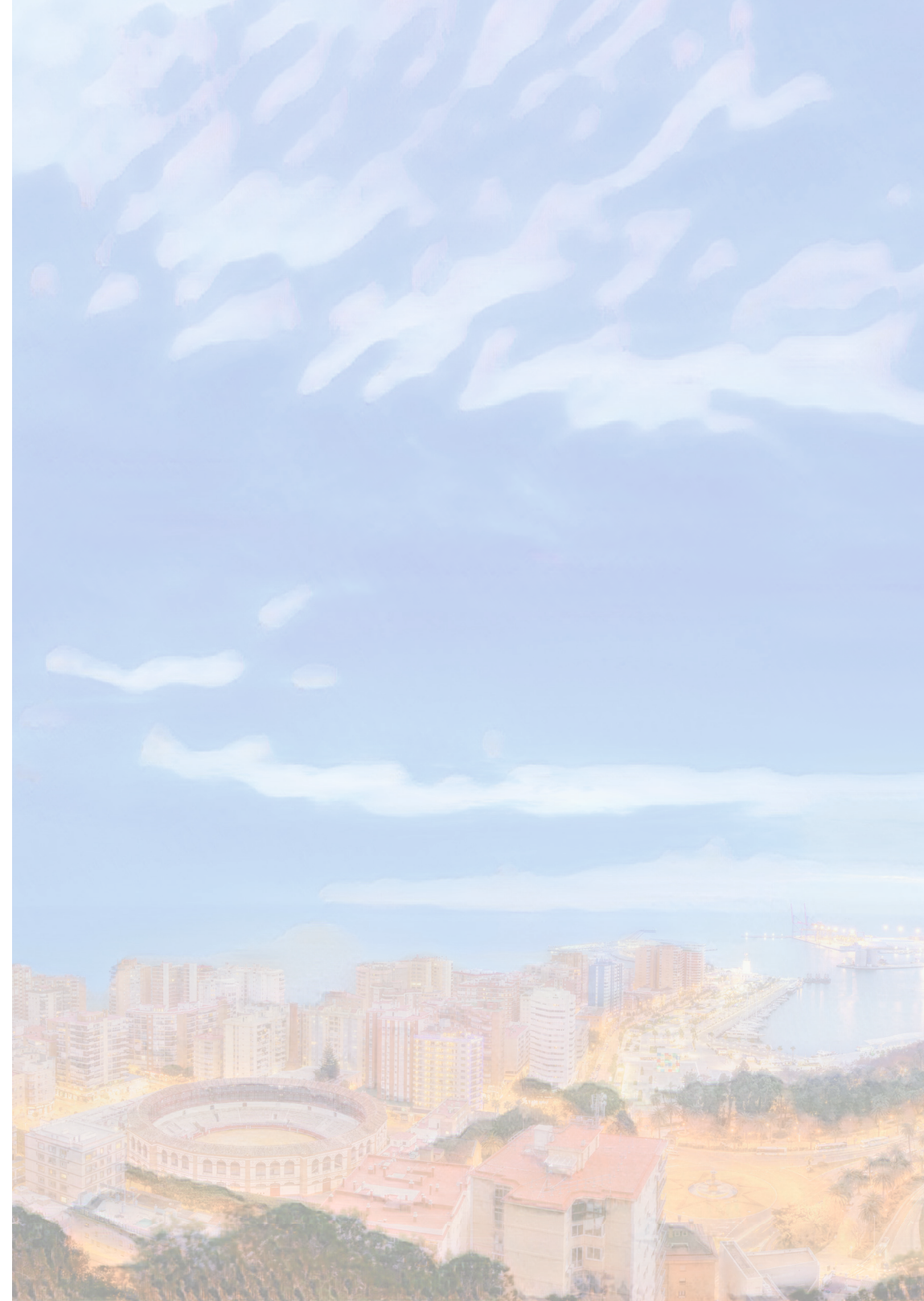
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