The 1st Isotope Ratio MS DAY

May 9-11, 2016

Fondazione Edmund Mach

S. Michele all’Adige (Trento, Italy)
Scientific Committee

Enrico Brugnoli - CNR Roma
Federica Camin - Fondazione Edmund Mach
Luigi Dallai - CNR Pisa
Xavier de la Torre - Laboratorio Antidoping FMSI, Roma
Fausto Grassa - Ist. Naz. Geofisica e Vulcanologia, Palermo
Paola Iacumin - Università degli Studi di Parma
Carmine Lubritto - Seconda Università degli Studi di Napoli
Fabio Marzaioli - Seconda Università degli Studi di Napoli
Luigi Mondello - Università degli Studi di Messina
Barbara Stenni - Università Ca’ Foscari, Venezia

Organizing Committee

Luana Bontempo - Fondazione Edmund Mach
Alessandro Gretter - Fondazione Edmund Mach
Floriana Marin - Fondazione Edmund Mach
Emanuele Eccel - Fondazione Edmund Mach
Organised by

with patronage by

PROVINCIA AUTONOMA DI TRENTO
The 1st Isotope Ratio Mass Spectrometry Day
is kindly supported and sponsored by:
### SCIENTIFIC PROGRAMME

**Monday, May 9**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 p.m. – 2:30 p.m.</td>
<td><strong>Registration and poster installation</strong></td>
</tr>
<tr>
<td>2:30 p.m. – 3:00 p.m.</td>
<td><strong>Welcome and opening ceremony</strong></td>
</tr>
<tr>
<td>3:00 p.m. – 3:30 p.m.</td>
<td><strong>Session 1: FOOD</strong></td>
</tr>
<tr>
<td></td>
<td>Chairpersons: Luigi Dallai, Paola Iacumin</td>
</tr>
</tbody>
</table>
| 3:00 p.m. – 3:30 p.m. | **PL1: Working group stable isotope analytics of GDCh and its role with regard to food authentication in Germany**  
|                    | Andreas Rossmann  
|                    | Isolab, Germany                                                   |
| 3:30 p.m. – 3:45 p.m. | **OR1: The influence of climate variability on chemical composition of European wines: a regional scale study**  
|                    | (Italy and Slovenia)  
|                    | Fabio Paolo Polo  
|                    | Ca’ Foscari University, Venezia, Italy                            |
| 3:45 p.m. – 4:00 p.m. | **OR2: Isotope ratio mass spectrometry in combination with chemometrics for the characterization of the geographical origin and the agronomical practice of table grape**  
|                    | Grazia Casiello  
|                    | University of Bari “Aldo Moro”, Bari, Italy                       |
| 4:00 p.m. – 4:15 p.m. | **OR3: Characterization of Mozzarella di Bufala Campana and farm production technique using C, N and O stable isotopes analysis: preliminary results**  
|                    | Simona Altieri  
|                    | Second University of Naples, Napoli, Italy                        |
| 4:15 p.m. – 4:45 p.m. | **Poster session & coffee break**                                  |
| 4:45 p.m. – 5:05 p.m. | **KN1: State of the art Isotope Ratio Mass Spectrometry (IRMS) applied to food traceability**  
|                    | Lionnel Mounier  
|                    | Thermo Fisher Scientific, Coutaboeuf, France                      |
| 5:05 p.m. – 5:20 p.m. | **OR4: Using GC/c/IRMS analysis to improve food traceability**  
|                    | Mauro Paolini  
<p>|                    | Fondaz. E.Mach, S. Michele all’Adige (TN), Italy                  |
| 5:20 p.m. – 6:00 p.m. | <strong>COSTITUZIONE DEL GRUPPO IRMS ITALIANO</strong>                          |
| 6:00 p.m.            | <strong>End of session</strong>                                                  |
| 6:00 p.m. – 7:00 p.m. | <strong>Cocktail offered by Thermo Fisher Scientific</strong>                   |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 a.m. – 9:00 a.m.</td>
<td>Registration</td>
</tr>
<tr>
<td>9:00 a.m. – 9:30 a.m.</td>
<td><strong>Session 2: ISOSCAPES</strong>&lt;br&gt;Chairpersons: Enrico Brugnoli, Federica Camin</td>
</tr>
<tr>
<td>9:00 a.m. – 9:30 a.m.</td>
<td><strong>PL2: Transforming rainwater isoscape patterns into effective applications for migratory wildlife conservation</strong>&lt;br&gt;<em>Len Wassenaar&lt;br&gt;IAEA, Wien, Austria</em></td>
</tr>
<tr>
<td>9:30 a.m. – 9:45 a.m.</td>
<td><strong>OR5: The geographical origin of birds migrating through Alps: a stable isotope approach (δ²H)</strong>&lt;br&gt;<em>Alessandro Franzoi&lt;br&gt;Fondaz. E.Mach, S. Michele all’Adige (TN), Italy</em></td>
</tr>
<tr>
<td>9:45 a.m. – 10:00 a.m.</td>
<td><strong>OR6: Spatial- and spatio-temporal analysis of stable isotopes ratios in biogeochemical processes</strong>&lt;br&gt;<em>Marco Ciolfi&lt;br&gt;CNR Institute of Agro-Environmental and Forest Biology Porano, Italy</em></td>
</tr>
<tr>
<td>10:00 a.m. – 10:15 a.m.</td>
<td><strong>OR7: Olive ripening and cultivar effects on carbon stable isotope compositions of n-alkanes and fatty acids in extra-virgin olive oils</strong>&lt;br&gt;<em>Silvia Portarena&lt;br&gt;CNR Institute of Agro-Environmental and Forest Biology Porano, Italy</em></td>
</tr>
<tr>
<td>10:15 a.m. – 11:00 a.m.</td>
<td><strong>Coffee break and poster session</strong></td>
</tr>
<tr>
<td>11:00 a.m. – 11:20 a.m.</td>
<td><strong>Session 3: WATER</strong></td>
</tr>
<tr>
<td>11:00 a.m. – 11:20 a.m.</td>
<td><strong>KN2: Reconstructing Antarctic climate over the last 2000 years by means of isotopic profiles</strong>&lt;br&gt;<em>Barbara Stenni&lt;br&gt;Università Ca’ Foscari Venezia, Italy</em></td>
</tr>
<tr>
<td>11:20 a.m. – 11:35 a.m.</td>
<td><strong>OR8: Oxygen and hydrogen stable isotope content in daily-collected precipitation samples at Dome C, East Antarctica</strong>&lt;br&gt;<em>Giuliano Dreossi&lt;br&gt;Università Ca’ Foscari Venezia, Italy</em></td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 11:35 a.m. – 11:50 p.m. | **OR9**: The “ISONITRATE Italy” project: exploring nitrate sources in polluted aquifers of the Po river alluvial plain (North Italy) by means of isotopic techniques  
Luisa Stellato  
Seconda Università degli Studi di Napoli, Italy |
| 11:50 p.m. – 12:05 p.m. | **OR10**: CNS stable isotopes in the Adige river waters: insights on natural and anthropogenic components  
Chiara Marchina  
Scuola Superiore S. Anna, Pisa, Italy |
| 12:30 p.m. – 2:00 p.m. | Lunch                                                                   |
| 2:00 p.m. – 2:20 p.m. | **KN3**: Simultaneous determination of $\delta^{13}$C and $\delta^{18}$O in CO$_2$ involved in leaf gas-exchange processes by means of isotope ratio infrared spectrometry (IRIS - Delta Raytm)  
Marco Lauteri  
National Research Council, Porano, Italy |
| 2:20 p.m. – 2:35 p.m. | **OR11**: A multiparametric approach to study the forest ecosystem responses to environment  
Martina Pollastrini  
University of Florence, Italy |
| 2:35 p.m. – 2:50 p.m. | **OR12**: Applications of carbon and nitrogen stable isotopes analyses in environmental studies  
Federico Rampazzo  
ISPRA STS Chioggia, Italy |
| 2:50 p.m. – 3:05 p.m. | **OR13**: Long-term warming affects $^{13}$C and $^{15}$N allocation in a field-grown Mediterranean shrub Cistus Monspeliensis  
Olga Gavrichkova  
National Research Council, Porano, Italy |
<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Details</th>
</tr>
</thead>
</table>
| 3:05 p.m. – 3:20 p.m. | **OR14:** *Thermally based isotopic speciation of carbon pools in environmental matrices*  
Claudio Natali  
University of Ferrara, Italy |
| 3:20 p.m. – 3:40 p.m. | **KN4:** *Preliminary results from a microvolume, dynamically heated analytical column for preconcentration and separation of simple gases prior to stable isotopic analysis*  
Filip Volders  
Elementar analysensysteme, Hanau, Germany |
| 3:40 p.m. – 4:20 p.m. | **Coffee break and poster session** |
| 4:20 p.m. – 4:35 p.m. | **OR15:** *Elucidating the fate of applied nitrogen fertilizer in rice paddy soils by means of bulk and compound-specific stable isotope δ¹⁵N techniques*  
Daniel Said-Pullicino  
University of Turin, Italy |
| 4:35 p.m. – 4:50 p.m. | **OR16:** *Belowground carbon allocation patterns as determined by the in-growth soil core ¹³C technique across different ecosystem types*  
Mirco Rodeghiero  
Fondaz. E. Mach, S. Michele all’Adige (TN), Italy |
| 4:50 p.m. – 5:05 p.m. | **OR17:** *Carbon allocation and partitioning in mountain grassland ecosystems during drought stress and recovery*  
Angela Augusti  
CNR, Porano, Italy |
| 5:05 p.m. – 5:25 p.m. | **OR18:** *Use of stable isotopes in agricultural sciences*  
Federica Tamburini  
ETH, Zurich, Switzerland |
| 5:25 p.m. | **End of session** |
| 6:30 p.m. | **Guided tour of the Muse museum and social dinner** |
## Wednesday, May 11

<table>
<thead>
<tr>
<th>Session 6: DOPING AND ARCHAEOMETRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairpersons: Andreas Rossmann</td>
</tr>
</tbody>
</table>

| 9:15 a.m. – 9:35 a.m. | **KN5**: Detection of pseudo-endogenous steroids in doping control analyses by GC/c/IRMS  
Xavier de La Torre  
Laboratorio Antidoping Federazione Medico Sportiva Italiana, Roma, Italy |
| 9:35 a.m. – 9:55 a.m. | **KN6**: Carbon and oxygen isotope data of carbonates and of structural carbonate of bioapatite: what are their meaning and possible use?  
Paola Iacumin  
University of Parma, Italy |
| 9:55 a.m. – 10:10 a.m. | **OR19**: A multiproxy approach to study dietary habit in different historical contexts  
Paola Ricci  
Second University of Naples, Italy |
| 10:10 a.m. – 10:25 a.m. | **OR20**: \(^{14}\)C mortar dating: selection of uncontaminated binder fractions by using stable carbon isotope analysis  
Anna Addis  
University of Padova, Italy |
| 10:25 a.m. – 11:00 a.m. | **Coffee break and poster session** |

<table>
<thead>
<tr>
<th>Session 7: NEW TECHNIQUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairperson: Xavier de La Torre</td>
</tr>
</tbody>
</table>

| 11:00 a.m. – 11:20 a.m. | **KN7**: High efficiency multidimensional gas chromatography coupled to isotope ratio mass spectrometry and quadrupole mass spectrometry simultaneous detection  
Danilo Sciarrone  
University of Messina, Italy |
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
</table>
| 11:20 a.m. – 11:35 a.m. | **OR21**: Comparison of isotopic ratio mass spectrometry (IRMS), non-dispersive infrared spectroscopy (NDIRS) and infrared spectroscopy for the isotopic composition analysis of food  
Concetta Pironti  
University of Salerno, Italy |
| 11:35 a.m. – 12:15 p.m. | **Round table**: stable isotopes: state-of-the-art, innovation & perspectives       |
| 12:15 p.m.       | **Closing remarks and arrivederci!**                                               |
POSTER COMMUNICATIONS

P1 Strontium isotopic ratio in agricultural products: research gaps and future investigations for its use in geographical traceability
A. Aguzzoni, M. Bassi, F. Comiti, T. Mimmo, P. Robatscher, F. Scandellari, M. Tagliavini, W. Tirler

P2 Analysis of the differences in water use strategies of three Mediterranean shrubs in Sardinia (Italy), through tree-rings C and O stable isotopes ratios
S. Altieri, S. Mereu, P. Cherubini, S. Castaldi, C. Sirignano, C. Lubritto, G. Battipaglia

P3 Effect of fruit removal on photosynthetic characteristics and carbon isotope composition in olive leaves
A. Augusti, S. Portarena, A. Paoletti, D. Farinelli, A. Rosati, F. Famiani, M. Lauteri

P4 Site-scale isotopic variations along a river course help localize drainage basin influence on river food webs
F. Bentivoglio, E. Calizza, D. Rossi, P. Carlino, G. Careddu, L. Rossi, M. L. Costantini

P5 Fermentation and re-fermentation process: effects on isotopic parameters in sweet wines
R. Caruso, M. Fiorillo, G.L. Gambino, F. Thomas, P. Traulo, G. Gagliano

P6 Isotope Ratio Mass Spectrometry in combination with chemometrics for the characterization of the geographical origin of sweet cherries
F. Longobardi, G. Casiello, A. Ventrella, V. Mazzilli, A. Nardelli, D. Sacco, V. Centonze, L. Catucci, A. Agostiano

P7 Carbon and oxygen isoscapes for geographical traceability of Italian extra virgin olive oils
F. Chiocchini, S. Portarena, M. Ciolfi, E. Brugnoli, M. Lauteri

P8 Diet reconstruction of the po valley people from neolithic to the early bronze age by stable isotopes
A. Di Matteo, P. Iacumin

P9 Effects of different zeolite amendments on plants C-N isotopic compositions
G. Ferretti, C. Natali, B. Faccini, D. Di Giuseppe, G. Bianchini, M. Coltorti

P10 Nature and origin of millennial-scale climate variability in the mid-latitude north atlantic ocean from foraminiferal $\delta^{18}$O and $\delta^{13}$C
P. Ferretti, S. J. Crowhurst, M. A. Hall, C. Barbante
P11 Stable isotope ratios of H, C, and O in Italian citrus juices
M. Fiorillo, R. Caruso, G.L. Gambino, P. Traulo, G. Gagliano

P12 The trophic ecology of migratory birds as shown by stable isotope ratios ($\delta^{13}C$, $\delta^{15}N$, $\delta^{34}S$)
A. Franzoi, F. Camin, P. Pedrini, L. Bontempo

P13 Geochemical and isotopic characterization of discharge waters from the Piz Boe active rock glacier, dolomites, eastern Italian Alps
J. Gabrieli, C. Turetta, L. Poto, A. Crepaz, A. Cagnati, B. Stenni, C. Barbante

P14 Precision, accuracy and repeatability of sulfur determination in several matrices by elemental analysis
L. Krotz, G. Giazzi

P15 Carbon sequestration and distribution in soil aggregate fractions under miscanthus and giant reed in the Mediterranean area
P. Gioacchini, F. Cattaneo, L. Barbanti, D. Montecchio, C. Ciavatta, C. Marzadori

P16 Fate of N in soil amended with $^{15}N$-labeled residues of winter cereals combined with an organic N fertilizer
P. Gioacchini, D. Montecchio, E. Gnudi, V. Terzi, A.M. Stanca, C. Ciavatta, C. Marzadori

P17 Stable isotope signatures of fluids emitted from “Macalube di Aragona” mud volcanoes (Sicily, Italy)
F. Grassa, G. Capasso, R. Favara, Y. Oliveri, A. Sollami

P18 Stable isotope ratio analysis for authentication of red yeast rice
M. Perini, G. Carbone, F. Camin

P19 Reconstructing climate changes from ombrotrophic peatlands using stable isotopes
L. Poto, M. Segnana, J. Gabrieli, C. Barbante

P20 $\delta^{18}O$ and deuterium excess records from the GV7 ice core (Oates coast, East Antarctica)

P21 Methionine incorporation into the breast muscle of broiler chickens at the final fase
A.C. Stradiotti, C. Ducatti, A. Celso Pezzato
P22  $^{87}\text{Sr}/^{86}\text{Sr}$ TIMS analyses in the food chain of white wines and their use as geological fingerprint for tracing their geographic provenance
I. Tescione, S. Marchionni, E. Braschi, F. Tassi, C. Romano, S. Tommasini, M. Mattei, S. Conticelli

P23  The potentiality of the stable isotope analyses in the discrimination between human and climate forcing: the study case of Arslantepe (Turkey)
C. Vignola, F. Marzaioli, A. Masi, I. Passariello, L. Sadori, F. Terrasi

P24  $\delta^{18}\text{O}$ and $\delta\text{D}$ in water vapor and precipitation for a coastal lagoon
D. Zannoni, A. Bergamasco, G. Rampazzo, B. Stenni

P25  Results of official controls by isotope ratio mass spectrometry of $\delta^{13}\text{C}$ in honey
A. Deluca, P.P. Curia, V. Di Martino, F. Fuselli, P. Tolomei