

**Workshop on
“Evolution of the Solar System: Constraints from
Meteorites”
5 – 9 June 2023**

Monday, 5 June 2023		
Time	Topic	Chair
08:15-08:45	Registration ISSI, Hallerstrasse 6, 1 st floor, Badges	
08:45-09:00	Welcome	
09:00-11:00	What are meteorites telling us about solar system evolution? 09:00 – 09:20 Meteoritical introduction (Jacquet) 09:20 – 09:40 Star formation (Desch) 09:40 – 10:00 Protoplanetary disks (Dullemond) 10:00 – 10:20 Planet(esimal) formation (Drazkowska) 10:20 – 11:00 Discussion	A. Morbidelli E. Jacquet, S. Desch, C.P. Dullemond, J. Drazkowska
11:00-11:30	<i>Coffee Break</i>	
11:30-12:30	How close are CI chondrite chemical compositions to the Sun? 11:30 – 11:45 Introduction (Palme & Lodders) 11:45 – 12:15 Solar Photosphere (Bergemann) 12:15 – 12:30 Discussion	D. Hezel K. Lodders, M. Bergemann
12:30-14:00	<i>Lunch</i>	
14:00-15:00	cont. How close are CI chondrite chemical compositions to the Sun? 14:00 – 14:15 Meteoritic Abundances and how well do we know CI chondrites abundances (Palme & Lodders) 14:15 – 14:45 How close are CI chondrites to the chemical composition of the Sun? (Lodders) 14:45 – 15:00 Discussion	D. Hezel K. Lodders, M. Bergemann
15:00-15:30	<i>Coffee Break</i>	
15:30-17:30	What are meteorites telling us about nucleosynthesis? 15:30 – 15:45 Ancient circumstellar dust in primitive Solar System materials (Leitner) 15:45 – 16:05 Presolar grains from Type II core collapse supernovae: their constraints on astrophysical and cosmochemical processes (Liu & Leitner) 16:05 – 16:25 Explosive stellar deaths and isotopic anomalies in meteorites (Meyer) 16:25 – 17:30 Discussion	A. Morbidelli Nan Liu, J. Leitner, B. Meyer, K. Marhas
	Open discussion (optional, led by chairs of the day)	
17:30	<i>Welcome Reception - Hallerstrasse 6, 1st floor</i>	

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Tuesday, 6 June 2023		
Time	Topic	Chair
09:00-11:00	How chemically and isotopically homogeneous was the early Solar System and when was it isolated from the ISM? 09:00 – 09:30 Basic introduction and presentation of data (Spitzer) 09:30 – 10:30 Interpretation I Infall and disk processes (van Kooten & Burkhardt)	K. Mezger C. Burkhardt, T. Kleine A. Pack, M. Schiller, F. Tissot, E. van Kooten
10:30-11:00	<i>Coffee Break</i>	
11:00-12:30	cont. How chemically and isotopically homogeneous was the early Solar System and when was it isolated from the ISM? 11:00 – 11:45 Interpretation II Terrestrial planet formation (Schiller, van Kooten & Burkhardt) 11:45 – 12:30 Discussion (Tissot)	K. Mezger C. Burkhardt, T. Kleine A. Pack, M. Schiller, F. Tissot, E. van Kooten
12:30-14:00	<i>Lunch</i>	
14:00-15:30	What is the significance of meteorite ages in the context of the evolution of the Solar System? 14.00-14.10 Introduction (Schönbächler) 14.10-14.40 Chronology of chondrules- systematic change with heliocentric distance? (Kita) 14.50-15.20 Chronology of planetary materials and implications for the distribution of short-lived radionuclides (Bouvier)	K. Mezger M. Schönbächler, A. Bouvier, N. Kita, T. Kruijer
15:30-16:00	<i>Coffee Break</i>	
16:00-17:30	cont. What is the significance of meteorite ages in the context of the evolution of the Solar System? 16.00-16.20 Mesosiderites, Vesta and Nb-Zr chronology (Schönbächler) 16.30-17.00 Chronology of accretion and core formation on inner Solar System bodies (Kruijer) 17.10-17.30 Discussion	K. Mezger M. Schönbächler, A. Bouvier, N. Kita, T. Kruijer
	Open discussion (optional, led by chairs of the day)	

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Wednesday, 7 June 2023		
Time	Topic	Chair
09:00-11:00	<p>How do returned asteroid samples compare with meteorites?</p> <p>09:00 – 09:30 What we learned from Itokawa and Ryugu returned samples (Nakamura) 09:30 – 10:00 What we learned from organic signatures of Ryugu returned samples (Engrand) 10:00 – 10:20 What we learned from Bennu remote sensing and perspective of returned sample (Hamilton, as video) 10:20 – 10:50 What we learned from stardust returned samples (Zolensky) 10:50-11:00 Summary & Discussion (Nakamura)</p>	<p>J. Zipfel T. Nakamura, M. E. Zolensky, C. Engrand</p>
11:00-11:30	<i>Coffee Break</i>	
11:30-12:30	<p>What is the cause for depletion of meteorites and planets in volatile elements?</p> <p>11:30 – 11:50 Experimental determination of trace element activities in Fe and FeS and their effects on nebular condensation temperatures (Sossi) 11:50 – 12:10 Equilibrium chemistry of volatile elements in Bulk Silicate Earth Material (Fegley) 12:10 – 12:30 Discussion</p>	<p>H. Palme P.A. Sossi, B. Fegley, R. Hin</p>
12:30-14:00	<i>Lunch</i>	
14:00-15:00	<p>cont. What is the cause for depletion of meteorites and planets in volatile elements?</p> <p>14:00 – 14:20 Isotopic perspectives on volatile depletion (Hin) 14:20 – 15:00 Discussion (Sossi)</p>	<p>H. Palme P.A. Sossi, B. Fegley, R. Hin</p>
15:00-15:30	<i>Coffee Break</i>	
15:30-17:30	<p>What is the nature of matrix and is there a genetic relationship between matrix and chondrules?</p> <p>15:30 – 16:00 The nature of matrix and possible relationship to chondrules (Brearley) 16:00 – 16:30 Compositional relationships between chondrules and matrix (Ebel) 16:30 – 17:30 Discussion</p>	<p>H. Palme A. Brearley, C. Alexander, D. Ebel</p>
	Open discussion (optional, led by chairs of the day)	
18:30	<i>Dinner at restaurant “Kornhauskeller” (organized by ISSI)</i>	

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Thursday, 8 June 2023		
Time	Topic	Chair
09:00-10:25	Which are the (currently) most likely chondrule formation processes? 09:00 – 09:20 Nature and diversity of chondrules (Jones). 09:20 – 09:40 The different models of chondrule formation (Russell) 09:40 – 10:25 New constraints on chondrule formation (Marrocchi)	D. Hezel Y. Marrocchi, S. Russell, R. Jones, R. Kuznetsova
10:25-10:55	<i>Coffee Break</i>	
10:55-12:30	cont. Which are the (currently) most likely chondrule formation processes? 10:55 – 11:20 Late-stage infall: what we know about streamers and their effects on the planet-forming disk (Kuznetsova) 11:20 – 11:30 Summary (Marrocchi) 11:30 – 12:30 Discussion	D. Hezel Y. Marrocchi, S. Russell, R. Jones, R. Kuznetsova
12:30-14:00	<i>Lunch</i>	
14:00-15:30	When, how and to which extent were primitive meteorites altered? 14:00 – 14:30 Low-temperature aqueous alteration of chondritic meteorites and their components (Lee) 14:30 – 15:00 Metasomatic alteration of chondritic meteorites and their components (Krot) 15:00 – 15:30 Isotopic effects of fluid-rock interaction in aqueously/metasomatically-altered chondrites and their components (Piani)	J. Zipfel S. Krot, W. Fujiya, M. Lee, L. Piani, L. Vacher
15:30-16:00	<i>Coffee Break</i>	
16:00-17:30	cont. When, how and to which extent were primitive meteorites altered? 16:00 – 16:30 Chronology of aqueous/metasomatic alteration of chondritic meteorites (Fujiya) 16:30 – 17:30 Discussion	J. Zipfel S. Krot, W. Fujiya, M. Lee, L. Piani, L. Vacher

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Friday, 9 June 2023		
Time	Topic	Chair
Start: 09:00	Flexible for: General discussion, planning of the book outline and chapters, optional group discussions.	tbd
12:00	Farewell	

Last update: 23 May2023