DD 19: Astronomie 2

Zeit: Dienstag 14:50–17:00 Raum: H05

DD 19.1 Di 14:50 H05

The International Astronomical Youth Camp (IAYC) - Promoting astronomy for 50 years — •Elizabeth Mondragón — International Workshop for Astronomy (IWA e.V.)

The International Astronomical Youth Camp (IAYC) is a three-week long summer camp aiming to promote knowledge of astronomy and astronomy-related sciences in a unique international atmosphere. Every year, since 1969, the IAYC takes place somewhere in Europe. About 70 people from a wide range of different countries live together for three weeks. Participants are between 16 and 24 years old and share a common interest: Astronomy. The camp offers several working groups covering different topics from astrophotography, observation and astroparticle physics to astronautics and astrobiology. The topic for the working group varies from year to year depending on the leader responsible for the working group. The participants are arranged according to their interests into different working groups during the camp. Each working group usually have between 8-10 participants. The leaders, who are chosen among previous year's participants, take the responsibility of organising each year's camp and supervise a working group. The IAYC2019 will take place in Klingenthal, Germany, from the 21st of July to the 11th of August 2019. In the next IAYC we will also celebrate the 50th anniversary of the International Workshop for Astronomy (IWA), the organisation that runs the camp and we will hold during the camp special activities to celebrate this event.

DD 19.2 Di 15:10 H05

Das neu gegründete ESERO-Büro für Deutschland: Struktur von ESERO und Erkenntnisse der Set-up Phase — •Andreas Rienow[1], Alexander Küpper[2], Cristal Schult[2], Judith Holländer[3], Susanne Hüttemeister[3], Raphaela Meissner[4], Christina Nadolsky[1], Johannes Schultz[1,5] und Klaus Trimborn[4] — [1]Arbeitsgruppe Geomatik, Geographisches Institut, Ruhr-Universität Bochum — [2]Institut für Physikdidaktik, Universität zu Köln. — [3]Zeiss Planetarium Bochum — [4]zdi.NRW — [5]Geographisches Institut, Universität Bonn

Seit Mai 2018 gibt es auch in Deutschland ein European Space Education Resource Office (kurz ESERO-Büro) der ESA mit Hauptsitz am Geographischen Institut der Ruhr-Universität Bochum. Neben der Ruhr-Universität Bochum sind am ESERO-Konsortium einzelne Institute der Universitäten Bonn und Köln, sowie das Planetarium Bochum und das zdi.NRW beteiligt. Die Aufgabe des (deutschen) ESERO-Büros liegt darin, die MINT-Bildung im Grundschulbereich und den weiterführenden Schulen in Deutschland zu fördern, wobei der Fokus der zu entwickelnden Unterrichtsmaterialien, Konzepte und Lehrerfortbildungen auf Themen der Erdbeobachtung, Astronomie und Raumfahrt liegt. In der Set-up Phase von ESERO wurden die Kernlehrpläne für die Fächer Biologie, Chemie, Geographie, Informatik, Mathematik, Physik und Technik auf astronomische und raumfahrtsbezogene Inhalte und Kontexte systematisch analysiert. Neben einer Beschreibung der grundlegenden Struktur von ESERO werden im Vortrag die Erkenntnisse dieser Lehrplananalyse vorgestellt.

Pause

DD 19.3 Di 16:00 H05

Neues vom Ursprung der Astronomiemethodik — •Olaf Kretzer — Schul- und Volkssternwarte Suhl, Hoheloh 1, 98527 Suhl

Vor ca. 200 Jahren wirkte in Thüringen ein nahezu unbekannter Lehrer, der die Astronomie in die Schule brachte und dazu vielfältige Unterrichtsmittel schuf: Johann Simon Schlimbach. In den letzten Jahren haben umfangreiche Recherchen neue Erkenntnisse über sein Wirken und seine Leistungen zu Tage gefördert. Im Vortrag werden anhand ausgewählter Beispiele die Methoden, welche Schlimbach zur Vermittelung astronomischer Inhalte einsetzte, vorgestellt und diskutiert.

DD 19.4 Di 16:20 H05

Derivation of the Sommerfeld FSC from Theory — •Manfred Geilhaupt — HS Niederrhein Mönchengladbach

Sommerfeld introduced the Fine-Structure-Constant (α) in 1916 by definition while combining fundamental constants (h, c, e) to come up with that number. But here is the way how to derive the FSC from Theory. Use Einstein*s Field Equation from General Relativity and you can first derive the restmass of the electron by solving the corresponding *1.Equation of Motion* and a 2.Equation of Motion yield the charge of the electron. For that step assume an electron*s (virtual and local) center of mass (point) to be at rest while applying the common Principles of Physics (1. and 2. Law of Thermodynamics) to find a solution r(t). The solution r(t), unit meter, reveals an internal action of motion of (non-local but dynamic) space-structure while only the virtual center of *mass* is assumed at rest. So we can interpret r(t) to be a *Mass-Generating-Function* - solving the Differential Equation. The complete solution is a combination of two independent ones. One solution leads to the effective value RG: we call it *Point-Like-Radius* (to be introduced into the following Newton-Schwarzschild-Einstein-Equation: c^2=G*me/(2alpha*RG)). The other solution gives the effective value rG: we call it *Wave-Like-Radius* (to be introduced into the Planck-Compton-Einstein-Equation: h=2pi*2rG*me*c). And now to the focus of this presentation: How to derive the FSC from GR+TD the combination of two Principle Theories. Both derivations of restmass and charge reveal a dependence on the Fine Structure Constant (α)(Experiment form Webb et al. 2011 meets theory GR+TD)

DD 19.5 Di 16:40 H05

A Novel Equivalence Principle for Quantum Gravity — •Hans-Otto Carmesin — Gymnasium Athenaeum, Stade — Universität Bremen — Studienseminar Stade

An equivalence principle is developed and used in a research club. From that principle H.-O. Carmesins* theory of quantum gravity is derived, fundamental problems of physics are solved and accurate accordance with observations is achieved, based only on the constants G, c and h. Pupils are interested since: The problems of flatness, the horizon and energy conservation are solved. Cosmic inflation is explained in accordance with observations (3%). Emergence of dark matter is explained in accordance with observations (0.23%). Emergence of dark energy is explained in accordance with observations (0.073%). Emergence of the structure of space-time is explained. Pupils actively participate in research in fundamental physics and present results in several posters here.

*Carmesin, H.-O. (2018): Entstehung der Raumzeit durch Quantengravitation. Berlin: Verlag Dr. Köster