

# ETP Weekly Meeting

## News



The banner features a dark background with a network of white nodes and lines. On the left, there is a silhouette of a person's head in profile, facing right. In the center, there is a circular graphic resembling a particle detector or a target. On the right, there is a world map with white lines connecting various locations. The text 'Institut für Experimentelle Teilchenphysik (ETP)' is written in white, with 'ETP' in a larger font. Below the text, there is a logo consisting of the letters 'ETP' in a stylized font, with a circular graphic behind the 'P'. Below the logo, the text 'Institut für Experimentelle Teilchenphysik' is written in a smaller font. On the left side of the banner, there is a block of Python code.

```
def main(config):  
    logger.debug("config: %s", config)  
    np.random.seed(int(config["seed"]))  
    import ROOT  
    ROOT.PyConfig.IgnoreCommandLineOptions = True  
    import root_numpy  
    import matplotlib.pyplot as plt  
    import tensorflow as tf  
    import tensorflow.keras as keras  
    logger.debug(tf.__file__)  
    tf.set_random_seed(int(config["seed"]))  
    from keras import set_session  
    tfconfig = tf.ConfigProto()  
    tfconfig.gpu_options.allow_growth = True  
    set_session(tf.Session(config=tfconfig))  
    from sklearn import preprocessing, model_selection  
    import keras.models  
    from keras.callbacks import ReduceLROnPlateau,  
        EarlyStopping, ModelCheckpoint  
    # Extract list of variables  
    variables = config["variables"]  
    classes = config["classes"]  
    logger.debug("Use variables:")  
    for v in variables:  
        logger.debug("%s", v)  
    # Load training dataset  
    if args.conditional:  
        args.balanced_batches = True  
        eras = ['2016', '2017', '2018']  
    else:  
        eras = ['any']
```

Ulrich Husemann

16.05.2022

# **New members or status changes**

**... since the last meeting**

# Upcoming Events

... welcome to the summer semester

- 19.05. – 3.45pm Particle Physics Colloquium
  - Ann-Kathrin Perrevoort (KIT) – “ $\mu 3e$ ”
- 20.05. – 3.45pm Physics Colloquium
  - Falk Eilenberger (FSU Jena) – Integration of two-dimensional materials in optical systems: towards nonlinear waveguides, integrated quantum light sources, and polariton physics

# Upcoming Events

... in the coming weeks

- 27.05. – 3.45pm Special Physics Colloquium
  - ... (belatedly) celebrating the 60th birthday of Günter Quast
- 13.–17.06. KSETA Lectures
  - Julius Wess Awardee Mark Wise (Caltech)



## Approximate symmetries of the Standard Model for elementary particle interactions

KSETA lectures by

**Prof. Mark Wise**

(*Caltech, USA*)

(Julius Wess Awardee)

KIT Campus South, bldg. 30.23/30.22

|                   |                        |                      |
|-------------------|------------------------|----------------------|
| <b>13.06.2022</b> | <b>14:00 – 15:30 h</b> | room 3/1             |
| <b>14.06.2022</b> | <b>11:30 – 13:00 h</b> | room 3/1             |
| <b>15.06.2022</b> | <b>14:00 – 15:30 h</b> | Lehmann lecture hall |
| <b>17.06.2022</b> | <b>11:30 – 13:00 h</b> | room 3/1             |

### Abstract:

Several different approximate symmetries of the standard model for particle physics and cosmology are introduced and their implications for experiment and observation are discussed. These symmetries include, baryon number, heavy quark symmetry and scale invariance. The latter is realized only in the early universe but has implications for the perturbations in the energy density that influence measurements of the microwave background anisotropy and the large scale distribution of galaxies. Baryon number violation has not been observed in laboratory experiments but is required to generate the cosmological baryon number excess. Finally, some of the predictions of the approximate heavy quark symmetry of the strong interactions will be studied in more detail in the upcoming Belle II experimental program.

[www.kseta.kit.edu](http://www.kseta.kit.edu)

# ETP News

... <https://www.etp.kit.edu/english/1178.php>

- Reviving ETP News / Aktuelles
- Please submit short reports (papers, relevant talks, workshops, activities, ...)

# Yesterday: ETP Hike

... to Karlsruher Grat

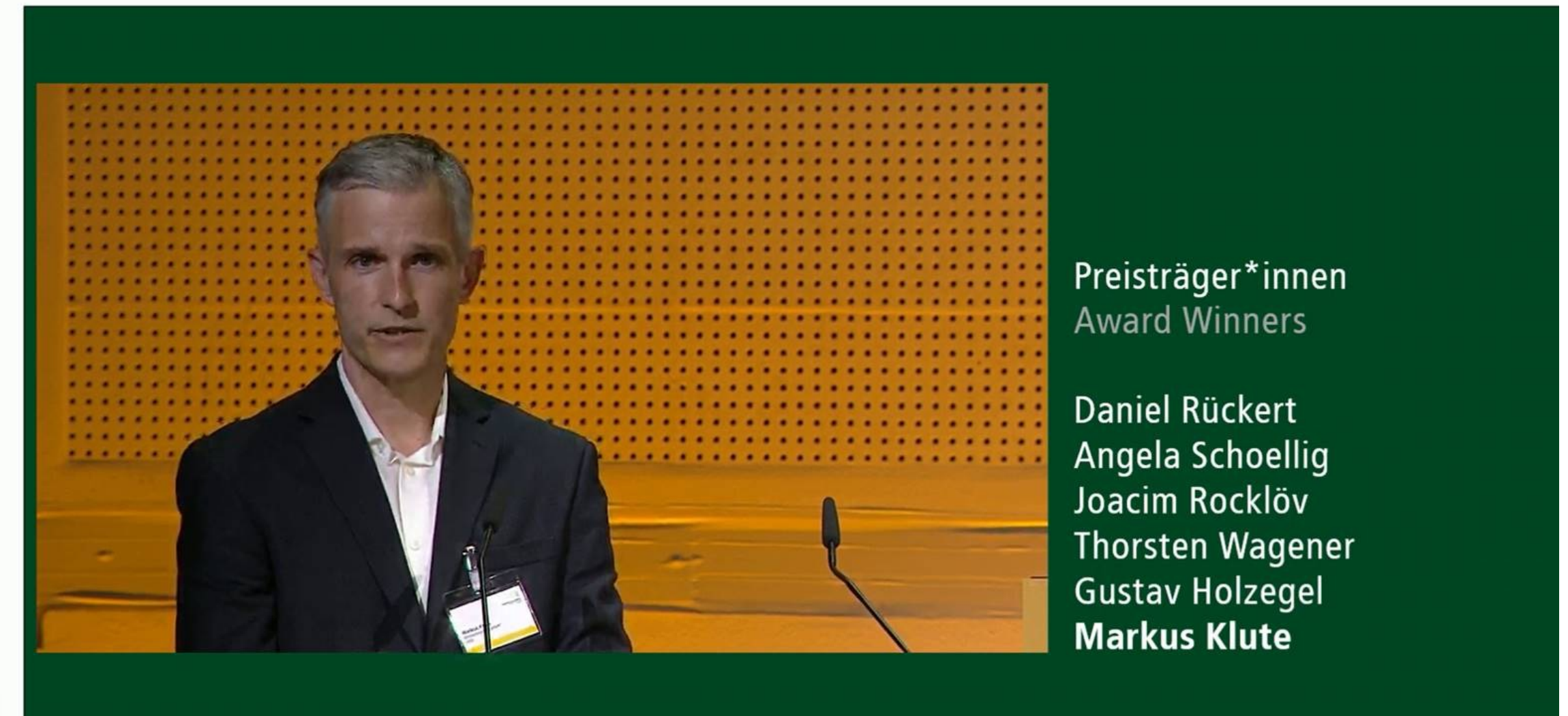
- Next hike planned for second half of June



# Alexander von Humboldt Professorships

... awarded by Federal Minister Stark-Watzinger on May 12 in Berlin

Alexander von Humboldt-Professur 2022 | Preisverleihung  
Alexander von Humboldt Professorship 2022 | Award Ceremony



Preisträger\*innen  
Award Winners

Daniel Rückert  
Angela Schoellig  
Joacim Rocklöv  
Thorsten Wagener  
Gustav Holzegel  
**Markus Klute**

...with a great speech by our own Markus Klute

# Campus Day

... May 14th, 2022

**CAMPUS TAG**  
LERNE DEINE UNI VOR ORT KENNEN



- Well organized by the department
  - Fachschaft: Food and live music
  - Lectures, information events, lab visits
- ETP: great showing
  - Poster exhibition, Belle VR headsets, CMS model, virtual CERN visit

**A big thank you** to all of you who helped, be it during the preparation or on shift on Saturday



# Campus Day

... Some Impressions



# Further Outreach Events

... Until the Summer Break

- 04.07. – 6pm Higgs@10
  - Public event (Gerthsen lecture hall) plus after-event party
- July/August: Code of the Universe
  - 4-weeks exhibition at Kronenplatz
  - Vernissage on 16.07.
  - Evening event on 26.07.



# Featured presentation

... by Alexander Heidelbach

New Physics Searches with Belle II