

\*The courses listed after the modules, which are marked with an \*, are exemplary. Lectures can be included in the modules according to your own interests. However, the courses must match the superordinate module designation.

| Module (German)   | Responsible                                     | Course  | CP     | Module (English)  | Weekday               | Time  | Room                   | Comment  |
|---|---|---|--------|---|-----------------------|---|------------------------|--|
| <b>Pflichtmodule</b>                                      |   |   |        |   |                       |   |                        |  |
| Computational Methods, Simulations & Experimental Control | Piet Schmidt                                    | Praktikum Computational Methods, Simulations & Experimental Control | 5      | Computational Methods, Simulations & Experimental Control |                       | by arrangement                                      |                        | Contact persons for the four parts of the module are listed in StudIP. Please reach out to them. Every part can be taken at any time. The seminar accompanies the lecture 'Quantum Optics' and forms a bridge in quantum engineering for students of LUH and TUBS. Offered alternately at PTB and HITec. HITec Hannover and PTB Braunschweig - to be determined at the introductory event. |
| Seminar*  | Piet Schmidt, Tanja Mehstäubler                 | Seminar Quantum technologies with laser cooled ions and atoms       | 3      | Seminar   |                       | introductory session on 08.04.25 at 1 p.m. (online) |                        |  |
| Fortgeschrittene Festkörperphysik                         | Fei Ding  |   |        | Advanced Solid State Physics                              |                       | takes place in the winter semester                  |                        |  |
| <b>Wahlpflichtmodule</b>                                  |   |   |        |   |                       |   |                        |  |
| <b>Bereich Quantum</b>                                    |   |   |        |   |                       |   |                        |  |
| Introduction to Nanophysics                               | Fei Ding, Lin Zhang                             | VL Introduction to Nanophysics                                      | 5/ 10* | Introduction to Nanophysics                               | Monday/Wednesday      | 10:00-12:00/10:00-12:00                             | 3701 - 267             | This course is held in German! The study material (slides/scripts) are mostly in English. Prof. Haug is available to help with all upcoming questions individually. The exam will be an English oral exam.   |
|   |   | Ü Introduction to Nanophysics                                       |        |   | Thursday              | 10:00-12:00   | 3701 - 269             |  |
| Quantenstrukturbauelemente                                | Rolf Haug                                       | VL Quantenstrukturbauelemente                                       | 5      | Quantum Structure Devices                                 | Monday/Thursday       | 14:00-16:00/12:00-13:00                             | 3701 - 268/ 3701 - 267 | This course is held in German! The study material (slides/scripts) are mostly in English. Prof. Haug is available to help with all upcoming questions individually. The exam will be an English oral exam.   |
|   |   | Ü Quantenstrukturbauelemente  |        |   | Thursday              | 13:00-14:00   | 3701 - 267             |  |
| Nichtlineare Optik  | Michael Kues                                    | VL Nichtlineare Optik   | 5      | Nonlinear Optics  | Tuesday               | 15:00-17:00   | 1101 - D326            | 5 CP must be achieved in the entire module, therefore the lecture Laserstabilisierung und Kontrolle optischer Experimente must be attended in the winter semester  |
|   |   | Ü Nichtlineare Optik  |        |   | Wednesday             | 8:00-10:00  | 1101 - D326            |  |
| Optische Experimente und ihre Kontrolle                   | Michèle Heurs, David Wu                         | VL Elektronische Metrologie im Optiklabor                           | 5      | Optical Experiments and their Control                     | Tuesday               | 10:00-13:00   | 3406 - 133             | also available as blockevent 13:00-19:00, 7.9.2026-11.09.2026, 3701 - 267  |
| Atomoptik   | Silke Ospelkaus                                 | VL Atomoptik  | 5      | Atomoptics  | Monday                | 11:15-12:45   | 1101 - D326            |  |
|   |   | Ü Atomoptik   |        |   | Monday                | 12:45-13:30   | 1101 - D326            |  |
| Single Photon Sources                                     | Ilja Gerhardt                                   | VL Single photon sources - from basics to applications              | 5      | Single Photon Sources                                     | Thursday/Friday       | 10:00-12:00/10:00-12:00                             | 3701 - 267             | also available as blockevent 13:00-19:00, 7.9.2026-11.09.2026, 3701 - 267  |
|   |   | Ü Single photon sources - from basics to applications               |        |   | Friday                | 12:00-14:00   | 3701 - 267             |  |
| Computational Photonics                                   | Ayhan Demircan, Ihar Babushkin, Oliver Melchert | VL Computational Photonics  | 6      | Computational Photonics                                   | Wednesday             | 9:00-12:00  | 1104 - B214            | 5 CP must be achieved in the entire module, therefore the lecture Laserstabilisierung und Kontrolle optischer Experimente must be attended in the winter semester  |
|   |   | Ü Computational Photonics   |        |   | Wednesday             | 14:15-15:45   | 1105 - 001             |  |
| Quantenmetrologie und -sensorik*                          | Bernhard Roth, Axel Günther                     | VL/Ü Laser Measurement Technology                                   | 5      | Quantum Metrology and Sensing                             | Friday                | 13:15-15:30   | 3403 - A003            | 5 CP must be achieved in the entire module, therefore the lecture Laserstabilisierung und Kontrolle optischer Experimente must be attended in the winter semester  |
| Quantensimulation*  | Antonio Calà Lesina, Izzatjon Allayarov         | VL/Ü Project Simulations in photonics (wave-optics)                 | 5      | Quantum Simulation  | Tuesday               | 13:30-17:00   | 1104 - B214            |  |
| Spezialisierung Quantencomputing*                         | Robert Raußendorf                               | VL/Ü Playing with NISQ  | 5      | Specialisation Quantum Computing                          | Monday/Tuesday        | 14:15-15:45/16:15-17:45                             | 1101 - A310/3701 - 201 | 5 CP must be achieved in the entire module, therefore the lecture Laserstabilisierung und Kontrolle optischer Experimente must be attended in the winter semester  |
| Spezialisierung Quantenphysik*                            | Robert Raußendorf                               | VL Quanteninformation   | ?      | Specialisation Quantum Physics                            | Thursday              | 14:00-16:00   | 3701 - 268             |  |
| Spezialisierung Quantenphysik*                            | Eric Jekelmann                                  | VL/Ü Introduction to Quantum Chaos                                  | 5      | Specialisation Quantum Physics                            | Monday/Tuesday        | 14:00-16:00/14:00-16:00                             | 3701 - 267             | 5 CP must be achieved in the entire module, therefore the lecture Laserstabilisierung und Kontrolle optischer Experimente must be attended in the winter semester  |
| Spezialisierung Quantenphysik*                            | Olaf Lechtenfeld                                | VL/Ü Fortgeschrittene Quantentheorie                                | 5      | Specialisation Quantum Physics                            | Tuesday/Thursday      | 12:00-14:00/10:00-12:00                             | 3701 - 267             |  |
| Quantenkommunikation*                                     |   |   |        | Quantum Communication                                     |                       |   |                        |  |
| <b>Bereich Engineering</b>                                |   |   |        |   |                       |   |                        |  |
| Optoelektronik  | Wolfgang Kowalsky, Hans-Hermann Johannes        | VL Optoelektronik   | 5      | Optoelectronics - TUBS                                    | Tuesday               | 11:30-13:00   | ?                      | Please contact Prof. Kowalsky for course entering in StudIP with klara.seid@tu-brunschweig.de in cc.   |
|   |   | Ü Optoelektronik  |        |   | Thursday              | 15:00-15:45   | ?                      |  |
| Aufbau und Verbindungstechnik in der Elektronik           | Erwin Peiner, Thomas Kämpfe                     | VL Aufbau und Verbindungstechnik in der Elektronik                  | 5      | TUBS - GERMAN only  | Thursday              | 8:00-9:30   | ?                      | Please contact Prof. Peiner for course entering in StudIP with klara.seid@tu-brunschweig.de in cc.   |
|   |   | Ü Aufbau und Verbindungstechnik in der Elektronik                   |        |   | Thursday              | 9:45-10:30  |                        |  |
| Grundlagen der Nanooptik                                  | Stefanie Kroker                                 | VL Grundlagen der Nanooptik   | 5      | Fundamentals of Nano Optics - TUBS                        | Wednesday             | 13:15-14:45   | HS 66.3                | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Grundlagen der Nanooptik  |        |   | Wednesday             | 15:00-16:30   |                        |  |
| Nanoelektronik  | Oleksandr Dobrovolsky, Meinhard Schilling       | VL Nanoelektronik   | 5      | Nanoelectronics - TUBS                                    | Thursday              | 9:45-11:15  | Inst. R 518            | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Nanoelektronik  |        |   | Thursday              | 9:00-9:45   |                        |  |
| Antennen und Strahlungsfelder                             | Jörg Schöbel                                    | VL Antennen und Strahlungsfelder                                    | 6      | Antennas and Radiation Fields - TUBS                      |                       | to be announced by lecturer, block lecture possible |                        | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Antennen und Strahlungsfelder                                     |        |   |                       |   |                        |  |
| Digitale Schaltungen                                      | Holger Blume                                    | VL Digitalschaltungen der Elektronik                                | 5      | LUH - GERMAN only   | Friday                | 13:30-15:00   | 3703 - 023             | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Digitalschaltungen der Elektronik                                 |        |   | Friday                | 15:15-16:45   |                        |  |
| Optische und elektronische Systeme*                       | Tobias Voß                                      | VL Molecular Electronics  | 5      | Optical and electronic systems - TUBS                     | Thursday              | 13:15-14:45   | LENA 003               | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Molecular Electronics   |        |   | Thursday              | 15:00-15:45   |                        |  |
| Optische und elektronische Systeme*                       | Uta Schlickum, Markus Etskorn                   | VL Nanostructures on Surfaces                                       | 5      | Optical and electronic systems - TUBS                     | Wednesday             | 08:45-11:15   | MS 3.415               | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Nanostructures on Surfaces  |        |   |                       |   |                        |  |
| Digitale Technologie*                                     | Sándor Fekete                                   | VL Approximation Algorithms   | 5      | Digital technology - TUBS                                 | Tuesday               | 15:00-16:30   | SN 19.7                | Please contact Prof. Fekete for course entering in StudIP with klara.seid@tu-brunschweig.de in cc.   |
|   |   | Ü Approximation Algorithms  |        |   | Wednesday             | 11:30-13:00   | SN19.3                 |  |
| Analoge Elektronik und Regelungstechnik*                  | Marcus Grobe                                    | VL Nichtlineare Regelungstechnik                                    | 5      | Analog electronics and control engineering - TUBS         | Wednesday             | 8:00-9:30   | HS 66.3                | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Nichtlineare Regelungstechnik                                     |        |   | Wednesday             | 9:45-11:15  |                        |  |
| Quanten und Informationen*                                | Christian Deppe                                 | VL Quantum Communication Networks                                   | 5      | Quantum and Information - TUBS                            | Tuesday               | 13:15-14:45   | SN 22.2                | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Quantum Communication Networks                                    |        |   | Monday (bi-weekly)    | 13:15-14:45   |                        |  |
| Quanten und Informationen*                                | Eduard Jorswieck, Christian Deppe               | VL Network Information Theory                                       | 5      | Quantum and Information - TUBS                            | Wednesday (bi-weekly) | 11:30-13:00   | SN 22.2                | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Network Information Theory  |        |   | Tuesday (bi-weekly)   | 11:30-13:00   |                        |  |
| Quanten und Informationen*                                | Christoph Hirche                                | VL Quantum Information Processing                                   | 5      | Quantum and Information - LUH                             | Tuesday               | 14:15-15:45   | 3403 - A401            | Please register directly via TUBS StudIP (like you would at LUH).  |
|   |   | Ü Quantum Information Processing                                    |        |   | Wednesday             | 10:15-11:45   |                        |  |
| Quanten und Informationen*                                | Thomas Kämpfe                                   | VL Advanced Applications of Field Theory                            | 5      | Quantum and Information - TUBS                            | Monday                | 9:45-11:15  | SN 23.3                | Please contact Prof. Kämpfe for course entering in StudIP with klara.seid@tu-brunschweig.de in cc.   |
|   |   | Ü Advanced Applications of Field Theory                             |        |   | Wednesday             | 11:30-13:00   |                        |  |
| Spezialisierung Quantentechnologie*                       | Andreas Waag                                    | VL Semiconductor Technology   | 5      | Specialisation Quantum technology - TUBS                  | Tuesday               | 14:00-15:30   | LENA 003               | Please contact Prof. Waag for course entering in StudIP with quantumengineering@quest.uni-hannover and sandra.engelhardt@tu-brunschweig.de in cc.  |
|   |   | Ü Semiconductor Technology  |        |   | Tuesday               | 15:45-16:30   |                        |  |
| Hochfrequenztechnik*                                      |   |   |        | High Frequency Technology                                 |                       |   |                        |  |
| <b>Praktische Anwendung</b>                               |   |   |        |   |                       |   |                        |  |
| Projektarbeit   | Piet Schmidt                                    | Laborpraxis   | 8      | Project work  |                       |   |                        |  |
| Quanten-Industriepraktikum A                              |   | Praxis  | 13     | Quantum Internship A                                      |                       |   |                        |  |
| Quanten-Industriepraktikum B                              |   | Praxis  | 8      | Quantum Internship B                                      |                       |   |                        |  |
| <b>Schlüsselkompetenzen</b>                               |   |   |        |   |                       |   |                        |  |

