**Form № 21**

 **APPROVED BY**

 **JINR Vice Director**

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 “\_\_\_\_\_ “ \_\_\_\_\_\_\_\_\_\_\_ 2018

**SCIENTIFIC AND TECHNICAL JUSTIFICATION FOR OPENING A NEW THEME**

**OR FOR EXTENDING THEME**

**to be included in the**

**TOPICAL PLAN FOR JINR RESEARCH FOR 2019–2023**

**Theme code** **Laboratory** BLTP

 **Department**

**Research area** Theoretical Physic

**Theme title** Dubna International Advanced School of Theoretical Physics (DIAS-TH)

**Theme leader** V.V.Voronov, A.S.Sorin

**Rector** A.T. Filippov

**Abstract**

The theme is aimed at further development of scientific and educational programs of JINR, with the aim of bringing to research the youth of the JINR Member States and other countries and involves the following tasks:

* Training courses for students, graduates, and young scientists in the [JINR](http://www.jinr.ru/) Member States and other countries (according to special agreements and grants);
* Looking for and supporting gifted young theorists in the [JINR](http://www.jinr.ru/) Member States; creating databases of students and young researchers;
* Organization of schools of different scales in Dubna and coordination with similar schools in Russia, Germany and other European countries;
* Support of the JINR experimental programs by organizing lecture courses and review lectures on new trends in modern physics;
* Cooperation with the University Center and Dubna University in training students and postgraduates as well as in organizing schools for students;
* Coordination of the research - training programs with workshops and conferences at JINR;
* Publication of lectures and discussions in different forms, in particular, with the use of modern electronic equipment, etc.
* Participation in the educational process of the Chairs of theoretical and nuclear physics, nanotechnologies and new materials at the International University “Dubna”.
* Supporting the WEB page of DIAS-TH

**List of activities**

2023

**Results expected upon completion of the theme**

* Creation, support and maintenance of database with lectures on topical problems of modern physics;
* cooperation with international foundations (DAAD, DFG, Helmholtz Association, etc.) and state institutions (BMBF, INFN, CNRS, HSE), as well as Russian foundations (RFBR, RF Federal programs) in organizing and conducting international schools for students, postgraduates and young scientists;
* additional computerization and equipment of the classroom and lecture hall.

**Participants from JINR**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Laboratory** | **№№** | **Name, Surname** | **№№** | **Name, Surname** |
| **BLTP** | 1.  | Blaschke D. | 8. | Sorin A.S. |
|  | 2. | Voronov V.V. | 9. | Spiridonov V.P. |
|  | 3. | Jolos R.V. | 10. | Teryaev O.V. |
|  | 4. | Zhuravlev V.I. | 11. | Tretyakov P.V. |
|  | 5. | Isaev A.P. | 12. | Filippov A.T. |
|  | 6. | Kolganova E.A. | 13. | Frizen A.V. |
|  | 7. | Pirozhenko I.G. |  |  |
| **LIT** | 1. | Korenkov V.V. | 2. | Kalinovsky Yu.L. |
| **UC** | 1. | Pakuliak S.Z. |  |  |
| **FLNP** | 1. | Aksenov V.L. |  |  |
| **VBLHEP** | 1. | Kekelidze V.D. | 2. | Savina M.V. |
| **DLNP** | 1. | Bednyakov V.A. |  |  |
| **FLNR** | 1. | Oganessian Yu.Ts. |  |  |

**Participating countries, institutes and organizations**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country** **or Organization** | **City** | **Institute or Laboratory** | **Participants****Name, Surname** | **Status** |
| Austria | Vienna | ITP TU | Wrase T. | exchange of visits |
| Armenia | Yerevan | YSU | Pogosyan G.S. | exchange of visits |
| Bulgaria | Sofia | INRNE BAS | Stoyanov Ch. | exchange of visits |
|  |  | SU | Chizhuv M.A. | exchange of visits |
| Belarus | Gomel | GSTU | Solovtsova O.P. | collaborative work |
| Poland | Wroclaw | UW | Lukerski J.. | exchange of visits |
| Russia | Moscow | ITEP | Morozov A.Yu. | exchange of visits |
|  |  |  | Novikov V.A. | exchange of visits |
|  |  |  | Braguta V. | exchange of visits |
|  |  | MSU | Gal’tsov D. | exchange of visits |
|  |  | MI RAS | Slavnov A.A, | exchange of visits |
|  |  |  | Aref’eva I.Ya. | exchange of visits |
|  |  | SINP | Boos E. | exchange of visits |
|  |  |  | Blokhintsev L.D. | exchange of visits |
|  |  | FRC CSC RAS | Faustov R.N. | exchange of visits |
|  |  | PI RAS | Vasiliev M.A. | exchange of visits |
|  |  |  | Dremin I.M | exchange of visits |
|  |  | INR RAS | Rubakov V.A. | exchange of visits |
|  |  |  | Gorbunov D.S. | exchange of visits |
|  |  | IHEP | Gershtein S.S. | exchange of visits |
|  |  |  | Pron’ko G.P. | exchange of visits |
|  |  |  | Razumov A.V. | exchange of visits |
|  |  |  | Bornyakov V. | exchange of visits |
|  |  | NRU HSE | Gritsenko V. | exchange of visits |
|  | St. Petersburg | PDMI RAS | Derkachev S.E. | exchange of visits |
|  | Tomsk | TPU | Bukhbinder I.L. | exchange of visits |
|  | Saratov | SSU | Smolyansky S.A. | exchange of visits |
|  | Chernogolovka | LITP RAS | Starobinsky A.A. | exchange of visits |
|  |  |  | Belavin A. | exchange of visits |
| Ukraine | Kiev | BITP NASU | Zinoniev G.M. | collaborative work |
|  |  |  | Shadura V.N. | exchange of visits |
| Czech Republic | Prague | CTU | Burdik C. | exchange of visits |
| Slovakia | Banska Bystrica | Matey Bel Univ. | Kolomeitsev E. | exchange of visits |
| Hungary | Budapest | Wigner RCP | Gogokhiya V. | exchange of visits |
| Germany | Hamburg | DESY | Buchmuller W. | exchange of visits |
|  |  |  | Ali A. | exchange of visits |
|  | Zeuthen | DESY | Riemann T. | exchange of visits |
|  | Darmstadt | GSI | Heinz S. | exchange of visits |
|  | Bielefeld | Univ. | Kaczmarek O. | exchange of visits |
|  | Leipzig | Univ.  | Bordag M. | collaborative work |
|  | Mainz | MITP | Koerner J. | collaborative work |
|  | Munich | Univ. | Mukhanov V. | exchange of visits |
|  | Potsdam | AEI | Nicolai H. | exchange of visits |
|  | Regensburg  | Univ. | Buividovich P. | exchange of visits |
|  | Rostock | Univ. | Roepke G. | exchange of visits |
| Italy | Padua | Univ. | Sorokin D. | exchange of visits |
|  | Napoli | Univ. | Santorelli P. | exchange of visits |
|  | Trieste  | SISSA | Petkov S. | exchange of visits |
|  | Turin | Univ. | Fre P. | collaborative work |
|  | Frascati | INFN | Lombardo M. | exchange of visits |
| Norway | Oslo | Univ. | Bravina L. | exchange of visits |
| South Africa | Cape Town | UCT | Cleymans J. | collaborative work |
| Spain | Madrid | Autonoma Univ. | Landsteiner K. | exchange of visits |
| United Kingdom | London | Imperial College | Stelle K. | exchange of visits |
| Greece | Athens | NTU | Zoupanas G. | exchange of visits |
| Canada | Edmonton | Univ. | Frolov V. | exchange of visits |
| China | Wuhan | Univ/ | Ding Heng Tong | exchange of visits |
| USA | Piscataway | Rogers Univ. | Zamolodchikov A | exchange of visits |
|  | Newport News | JLab | Radyushkin A.V. | exchange of visits |
|  | San Diego | Univ. | Weber F. | exchange of visits |
| France | Paris | ENS | Kazakov V.A. | exchange of visits |
|  | Orsay | NPI Orsay | NguenVan Giai | collaborative work |
| Japan | Chiba | In. of Technology | Nobutoshi Yasutake | collaborative work |

**Time frame of the theme**

2019 - 2023

**Total estimated cost of the theme**

|  |  |  |  |
| --- | --- | --- | --- |
| **№№** | **Budget items**  | **Total cost** |  **Costs per years**  **(thousand USD)** |
| **1st****year** | **2nd****year** | **3rd****year** | **4th****year** | **5th****year** |
| 1. | Personal costs | 423,7 | 72,1 | 79,3 | 85,7 | 91,0 | 95,6 |
| 2. | Social tax | 128,0 | 21,8 | 23,9 | 25,9 | 27,5 | 28,9 |
| 3. | Socbytfond | 27,5 | 4,7 | 5,2 | 5,6 | 5,9 | 6,2 |
| 4. | International cooperation | 30,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 |
| 5/ | Materials | 100,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 |
| 6/ | Equipment | 50,0 | 10,0 | 10,0 | 10,0 | 10,0 | 10,0 |
| 7. | BLTP Infrastructure | 174,7 | 31,6 | 33,2 | 34,9 | 36,6 | 38,4 |
| 8. | JINR Infrastructure | 275,3 | 46,8 | 51,5 | 55,7 | 59,1 | 62,1 |
| **Total** | **1209,2** | **213,0** | **229,1** | **243,8** | **256,1** | **267,2** |

AGREED:

JINR Chief Scientific Secretary **Laboratory Director**

Sorin A.S. **/ \_\_\_\_\_\_\_\_\_/** Kazakov D.I. **/ \_\_\_\_\_\_/**

**“ “ 2018 “ “ 2018**

**Head of Planning and Finance Department Laboratory Scientific Secretary**

Uvarova L.V. **/ \_\_\_\_\_\_\_/** Andreev A.V. / **\_\_\_\_/**

**“ “ 2018 “ “ 2018**

**Head of Science Organization Department Laboratory Economist**

Sissakian N.I. / **\_\_\_\_\_\_\_\_\_\_/** Ivanova I.N. / **\_\_\_\_/**

**“ “ 2018 “ “ 2018**

 **Theme leader** Voronov V.V. **/ \_\_\_\_/**

 **“ “ 2018**