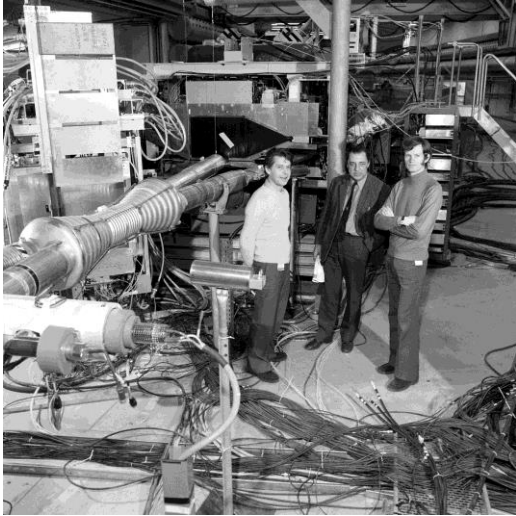


A few snapshots from Igor

Thomas Muller
Institut für Experimentelle Kernphysik, KIT

Collisions at 52 GeV



Member of the team hunting charmed particles with the ISR experiment R605. This was a search of electrons and muons directly produced in the forward direction (1975)

Down the tunnel of the SPS, I. Golutvin (Dubna), P.L. Kapitza, V. Kaftanov (ITEP), R. Lévy-Mandel, Ph. Bernard (1975)



Collisions at 7 TeV



„Igor Golutvin, head of the seminar on Physics on Large Hadron Collider in Dubna after first 7 TeV collisions.“



“This event is largely symbolic because nobody doubted that the collisions would take place”

„Matveyev said Russia became involved in the LHC project in 1996, when an agreement between the Russian government and CERN was signed. **At that time, Russia pledged to allocate \$6 billion annually for the project over the next ten years.** Matveyev stressed that, as compared to other participants, Russia had an equal status in the project.“



Oct 1, 2013 - 11:00

Russia is set to become an associate member of the European Organization for Nuclear Research, CERN, ending an old paradox. The Russians have lived with an observer status until now despite working closely with the world's largest particle physics laboratory for years.

The year was 1959. In a black and white photo, John Adams, head of the team working on the proton synchrotron, CERN's first major particle accelerator, holds up a bottle of vodka, a gift from colleagues at the Joint Institute for Nuclear Research at Dubna, north of Moscow.

The vodka came with instructions for the team in Geneva to drink it once the machine was successfully started up. They drank it to the last drop, stuffed a Polaroid photo showing the synchrotron working into the empty bottle, and sent it back to the Soviet Union.

But the Russians were not just watching from afar, already coming on regular visits. For many years, their guardian angel on site was the granddaughter of the famous Russian jeweller Carl Fabergé. As a secretary at CERN she helped Soviet scientists to get their bearings in the city, often putting them up at her own house to save them the cost of a hotel.

Today, there are 883 Russians working on site, with only the Americans being more numerous among non-member countries with over 1,700 people.

Among those Russians is a family with two generations of physicists. At 79, Igor Golutvin is one of the laboratory's pioneers. He arrived over 50 years ago, and today he heads the council on scientific collaboration between CERN and the Dubna Institute.

His son, Andrei Golutvin, a professor at London's Imperial College, has been coming regularly to Switzerland for well over a decade. Since 2007, he has worked on the Large Hadron Collider beauty (LHCb) experiment, one of the four collision detectors in the world's biggest particle accelerator.

In general, the two physicists try not to talk shop at home, "but if we go out for dinner, we can't keep off philosophical subjects, such as Russia's membership of CERN", the younger Golutvin confesses.

Лауреат Губернаторской премии "Наше Подмосковье" за 2013 г.



С момента утверждения проекта БАК и до окончательного его создания ушло 14 лет. Минфин России в течение 10 лет, начиная с 1997 года, ежегодно выделял на международную программу по 6 млн долларов. В результате общий вклад нашей страны составил примерно 10% от всей стоимости проекта.

Существенную роль в становлении и работе БАК играют два подмосковных научных центра из Дубны и Протвина. Они объединились ещё с несколькими российскими учреждениями и странами, входящими в дубненский Объединённый институт ядерных исследований (ОИЯИ). Так образовалась международная коллаборация RDMS (Russia and Dubna Member State), которая занималась проектированием торцевых детекторов, их изготовлением «под ключ», монтажом и тестированием. Это редкий случай в мировой практике, когда одна коллаборация несла полную ответственность за выполнение такого большого объёма работ.

– Коллаборация RDMS, – отмечает её руководитель заслуженный деятель науки РФ, доктор физико-математических наук Игорь Голутвин, – позволила в полной мере раскрыть научный потенциал как крупных, так и относительно небольших НИИ, входящих в её состав. Это своего рода «союз вольных художников», в котором каждый рисовал свою часть картины от души, вдохновляя других. Проектирование и строительство торцевой части мюонной станции доверили ОИЯИ, потому что у дубненцев уже был большой опыт в решении таких задач.

– Вся мюонная станция находится в мощном магнитном поле величиной 4 Тесла, – уточняет начальник сектора научно-экспериментального отдела физики на CMS ОИЯИ, кандидат технических наук Владимир Каржавин. – Поле искривляет траекторию мюона и даёт возможность определить его энергию.

Учёные Института физики высоких энергий (Протвино) внесли основополагающий вклад в создание адронного и электромагнитного калориметров, в этом им помогали специалисты из Троицкого института ядерных исследований.



Golutvin and Onuchin celebrate 70th birthdays

Golutvin is well known as the constructor of several generations of large-scale experiments at JINR, at the Institute of High Energy Physics in Protvino, and at CERN, most recently with CMS. He began to develop and study wire spark chambers for neutrino experiments during his first visit to CERN in October 1964. This was a time of rapid development in electronics, when computers were used to register events online for the first time. With the experience gained at CERN he was able to implement electronic recording methods in experiments on elastic $\pi\pi$ scattering at the JINR Synchrophasotron and the K^0 - \bar{K}^0 regeneration beam at the U-70 accelerator in Protvino. Ten years later, in 1974, Golutvin was among the group of physicists delegated to CERN to establish a joint JINR-CERN experimental programme. He came to work on the R-605 experiment led by Carlo Rubbia, which searched for charmed particles at the Intersecting Storage Rings. His successful work with the JINR team promoted the development of co-operation between the two centres. The result was the approval, in 1975, of the first joint experiment, NA4, on the study of the structure of the nucleon by the BCDMS (Bologna-CERN-Dubna-Munich-Saclay) collaboration. Golutvin led the R&D on the large proportional chambers and for two years led the development and construction of the experiment.

In Dubna Golutvin organized a powerful methodical basis for the R&D and production of wire chambers of different types and their electronics. Drift and proportional chambers constructed under his leadership were used in the SIGMA experiment and in two neutrino detectors at Protvino, as well as three generations of the ANOMALON experiment at the JINR Synchrophasotron. The large-area drift chambers made at Dubna were used in NA4 at CERN and HERA-B at DESY. In 1988 he initiated the Dubna silicon programme to develop radiation-hard silicon detectors for a wide range of applications in experiments at colliders. For the past decade Golutvin has participated in the organization of international co-operation on the CMS experiment at CERN, and has been a spokesperson of the RDMS (Russia and Dubna Member States) group since 1994. This group, which involves 24 research institutes from Russia and JINR member states, contributes significantly to CMS.

During his work at JINR Golutvin also set up a scientific school and brought together active physicists and engineers who are well recognized in the global scientific community. Alexei Onuchin's whole scientific career has related to the BINP, where he has worked since 1959. His PhD thesis in 1965 on the luminosity measurement by small-angle scattering was one of the first experiments at the colliding-beam facility, and in 1966 he was author of a pioneering work on a test of quantum electrodynamics in large-angle electron-electron elastic scattering. He then became one of the leaders of the experiment performed at the VEPP-2 e^+e^- collider in the 1.18-1.34 GeV energy range that had two important results in 1970. The discovery of multihadron production, simultaneously with Frascati, was one of the first indications of the existence of light quarks, while a detected excess in the pion and kaon form factors over theoretical predictions became a step to a later observation of ρ' , ω' and ϕ' mesons.



CERN Courier

Jul 15, 2009

Golutvin celebrates 75th birthday at Dubna



Igor Golutvin, one of the leading scientists at JINR, Dubna, celebrates his 75th birthday in August. He is well known for several generations of large-scale experiments at JINR's synchrophasotron and at the accelerator of the Institute for High Energy Physics in Protvino, as well as at CERN.

Golutvin began to develop and study wire spark chambers for neutrino experiments during his first visit to CERN in 1964, at the time when online computers were first used. This experience helped him involve electronic methods in experiments at the synchrophasotron and at the U-70 accelerator at Protvino. Under his leadership, the USSR then had its first – and one of the world's first – apparatus to study elastic pp-scattering and K^0 – K^0 regeneration.

In 1974 Golutvin was one of a group of physicists sent to CERN to establish a joint JINR–CERN experimental programme. The successful work by Golutvin and the Dubna team strengthened the participation of the JINR physicists at CERN and promoted the development of co-operation. As a result the first joint experiment, NA4, by the Bologna–CERN–Dubna–Munich–Saclay collaboration, was approved in 1975. Golutvin led the R&D and construction of large proportional chambers for this experiment.

At Dubna he organized a powerful base for R&D and mass-production of different types of wire detectors and their electronics. Drift and proportional chambers constructed under his leadership were used in experiments at Dubna and Protvino, and large-area chambers manufactured at Dubna were used in the SMC experiment at CERN and in HERA-B at DESY. In 1988 Golutvin initiated the Dubna silicon programme to develop applications of radiation-hard silicon detectors in experiments at colliders.

For the past 16 years Golutvin has been an organizer of international co-operation in the CMS project at the LHC. He has been spokesperson for the Russia and Dubna Member States (RDMS) collaboration in CMS since 1994. The RDMS–CMS collaboration, which involves 24 research institutes, was responsible for the design, construction and commissioning of the endcap hadron calorimeter and first forward muon stations, with active participation in the design and production of several other sub-detectors. Golutvin has also paid meticulous attention to development of the RDMS physics programme, grid-based computing and the CMS upgrade for the proposed Super-LHC.

- A session of the 13th Annual RDMS–CMS Collaboration Conference dedicated to Golutvin's 75th birthday will be held in Dubna on 10 August.

Key Publications



Magnetostrictive spark chambers in a magnetic field

I.A. Golutvin, Yu.V. Zanevsky, Yu.T. Kiryushin, V.D. Peshekhonov, V.D. Ryabtsov,
I.M. Sitnik (Dubna, JINR). 1969.

Published in **Nucl.Instrum.Meth.** **67 (1969) 257-260**

Transmission regeneration of neutral k-mesons on hydrogen in the momentum region of 14-42 gev/c

V.K. Birulev, N.G. Fadeev, L.B. Golovanov, I.A. Golutvin, N.N. Govorun, T.S. Grigalashvili,
B.N. Guskov, I.M. Ivanchenko, V.V. Kukhtin, G. Kish (Dubna, JINR & Serpukhov, IHEP &
Budapest, RMKI) *et al.*. 1972.

Published in **Phys.Lett.** **B38 (1972) 452-456**

Experimental Observation of a Copious Yield of Electrons with Small Transverse Momenta in p p Collisions at High-Energies

L. Baum, M.M. Block, B. Couchman, J. Crawford, A. Derevshchikov, D. DiBitonto, I. Golutvin,
H. Hilscher, J. Irion, A. Kernan *et al.*. Dec 1975. 10 pp.

Published in **Phys.Lett.** **B60 (1976) 485**

Characteristics of the MWPC of 3 x 1.5-m**2 Due to the Background (In Russian)

A.V. Vishnevsky, I.A. Golutvin, A.V. Zarubin, Yu.T. Kiryushin, N.A. Kuzmin, D.A. Smolin, Yu.A. Yatsunenکو (Dubna, JINR). Aug 1977. 7 pp.

Published in Submitted to: Prib. Tekh. Eksp. JINR-P13-10939



Proposal To Study Anomalous Fragments And Investigate Their Properties

I.A. Golutvin, V.A. Nikitin, V.A. Sviridov (Dubna, JINR). Aug 1983. 9 pp. JINR-P1-83-583

Proportional Chambers With High Voltage Electrodes Made Of Aluminum Foil

A.V. Vishnevsky, I.A. Golutvin, Yu.L. Zlobin, Yu.T. Kiryushin, L.V. Svetov (Dubna, JINR).

1984. Published in Instrum.Exp.Tech. 27 (1984) 56-59

Investigation Of Plastic Streamer Tube Space Resolution (In Russian)

I.A. Golutvin, V.Kh. Dodokhov, V.Yu. Karzhavin, Yu.T. Kiryushin, L.V. Komogorova,

V.N. Lysyakov, D. Pose, S. Riemann (Dubna, JINR). Nov 1985. 12 pp.

Published in Submitted to: Prib. Tekh.Eskp. JINR-P13-85-819

GEM Letter of Intent



GEM Collaboration (R. Steiner (Adelphi U.) et al.). Nov 1991. 100 pp.

SSCL-SR-1184, GEM-TN-92-49, SSC-LOI-0004

A Silicon hadron calorimeter module operated in a strong magnetic field with VLSI readout for LHC

I. Golutvin (Dubna, JINR), B. Borgia (Rome U. & INFN, Rome), F. Carminati, M. Della Negra, S. Giani, M. Glaser, Alain Herve, J.M. Le Goff, F. Lemeilleur, M. Pimia (CERN) et al.

Jan 1992. 32 pp. CERN-DRDC-91-54, CERN-DRDC-P-34

Shashlik calorimetry a combined Shashlik + preshower detector for LHC: R & D proposal

J. Badier, G. Bonneaud, A. Busata, P. Busson, C. Charlot, L. Dobrzynski, C. Gregory, A. Karar, R Tanaka (Ecole Polytechnique), P. Bloch (CERN) et al. Aug 1993. 68 pp.

CERN-DRDC-93-28, CERN-DRDC-P-50

Spatial Resolution of 3x0.3 m² Dubna Prototype CSC (Preliminary Results)



A. Chvyrov, Yu. Ershov, I. Golutvin, A. Ivanov, V. Karjavin, V. Khabarov, Yu. Kiryushin, V. Kondrashov, A. Makhankov, S. Movchan (SSCL) et al. Sep 14, 1993. 19 pp.

SSC-GEM-TN-93-466

Nuclear structure function in carbon near $x = 1$

BCDMS Collaboration (A.C. Benvenuti (Bologna U. & INFN, Bologna) *et al.*). Apr 1994.
Published in Z.Phys. C63 (1994) 29-36

Experimental setup ANOMALON for measurement of relativistic nuclear fragmentation cross-sections

* Yu.T. Borzunov, L.B. Golovanov, I.A. Golutvin, V.S. Khabarov, V.V. Perelygin, V.V. Tikhomirov, D.A. Smolin, A.Yu. Sukhanov, V.A. Sviridov, A.P. Tsvinev (Dubna, JINR) *et al.*. Oct 1996.
Published in Dubna JINR - 1(81)-97 (96/10,rec.Jun.97) 75-80.

CMS computing support at JINR

* I.A. Golutvin, V. Korenkov, A. Lavrentev, R. Pose, E. Tikhonenko (Dubna, JINR). May 1998. 7 pp. JINR-D11-98-122

P3: The Full scale prototype of the ME1/1 CSC

Yu.V. Erchov, I.A. Golutvin, V.Yu. Karjavin, V.S. Khabarov, Yu.T. Kiryushin, G.V. Mescheriakov, P.V. Moissenz, S.A. Movchan, V.V. Perelygin, V. Pose (Dubna, JINR) *et al.*.
Nov 1999. 6 pp. JINR-E13-99-296

JINR participation in the CMS project

* I.A. Golutvin, A.V. Zarubin (Dubna, JINR). 2002.
Phys.Part.Nucl. 33 (2002) 334-342, Fiz.Elem.Chast.Atom.Yadra 33 (2002) 654-668

CMS expression of interest in the SLHC

* CMS Collaboration (J. Nash (Ed.) *et al.*). Mar 2007. 56 pp.
CERN-LHCC-2007-014, CERN-LHCC-G-131

Statistics about Igor

Collaborations

CMS Collaboration ([364](#))

HERA-B Collaboration ([19](#))

BCDMS Collaboration ([16](#))

CMS HCAL Collaboration ([5](#))

Spin Muon Collaboration ([4](#))

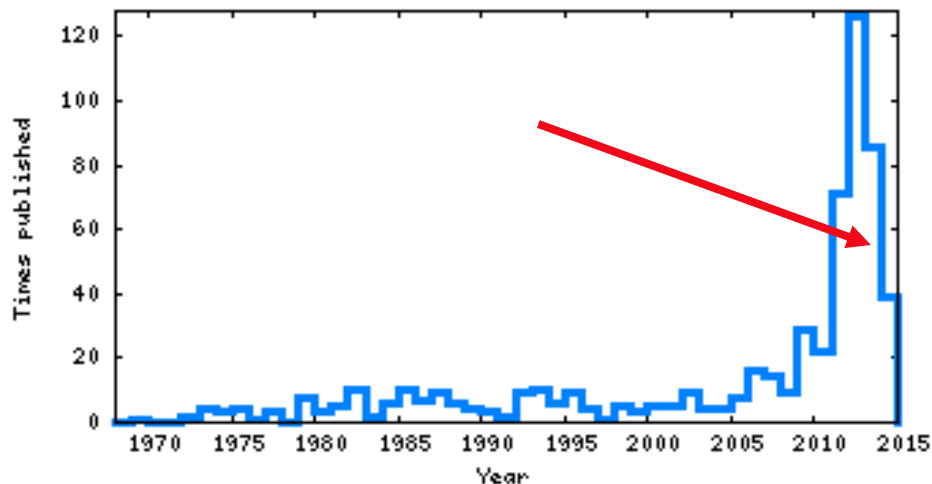
BCDMS COLLABORATION ([3](#))

CALICE Collaboration ([3](#))

GEM Collaboration ([3](#))

RD36 Collaboration ([3](#))

Bologna-CERN-Dubna-Munich-Saclay Collaboration ([2](#))



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[Y.T.Kiryushin.1](#) ([31](#))

[V.S.Khabarov.1](#) ([26](#))

[S.A.Movchan.1](#) ([23](#))

[V.Perelygin.1](#) ([23](#))

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[V.A.Sviridov.1](#) ([21](#))

[I.A.Savin.1](#) ([19](#))

[N.I.Zamyatin.1](#) ([18](#))

Dear Igor:

Together with all your colleagues and friends, I wish you

Happiness

Good health

Active participation: family, friends, science

... and

I invite you cordially to participate in my 80th anniversary