In memory of

Mikhail Igorevich Polikarpov
(29.12.1952 – 18.07.2013)

Misha was born on Dec. 28, 1951. Everybody who knew him could freely come to visit him on his birthday. In early years of his childhood Misha spent few years in France together with his parents. Back in Moscow he attended special school with extensive study of French.

He went to study at MIPT in 1969, Department of General and Applied Physics, group number 27 - elementary particle physics. The competition was unthinkable - more than 100 applicants per one place in the group. His university mates called him Michelle because of his excellent French. Already at the second year students attended lectures at ITEP. Prof. Yurii Siminiv became Misha's supervisor for both diploma thesis and PhD thesis.

"From the very beginning Misha was looking for new, original ways to solve the problems which I suggested him. One example was use of Green function Monte Carlo method. He moved to lattice gauge theory studies soon after getting PhD, that was again his own choice. I believe he made a good service for the Russian science, without him the development of the important field of lattice gauge theory would be delayed in Russia by many years."

Yu. Simonov

Misha was working at ITEP since 1975, almost 40 years. He started research in the field of LGT in 1980 together with Yurii Makeenko and late Sasha Veselov.
Lattice ITEP group was formally created in 2001 with name Laboratory 191 on Lattice gauge theories.

The list of Misha's collaborators is very impressive. I got from HepNames more than 90 names. His most frequent collaborator – Maxim Chernodub, now at CNRS, - 83 papers.
I believe that Misha had a talent to attract young talented students. His mission was to teach them, to help them to become excellent scientists.

For us, his students, PhD students and PostDocs, Misha Polikarpov was like a scientific father. And much more than just that, his care about us was very personal and very kind. He has deeply influenced many of us. And it is very hard to believe that we will not see Misha anymore ... at least in this world.

Maxim Chernodub

Mikhail Zubkov

Emil Akhmedov

Maxim Chernodub

Fedor Gubarev

Sergey Morozov

Vladimir Belavin

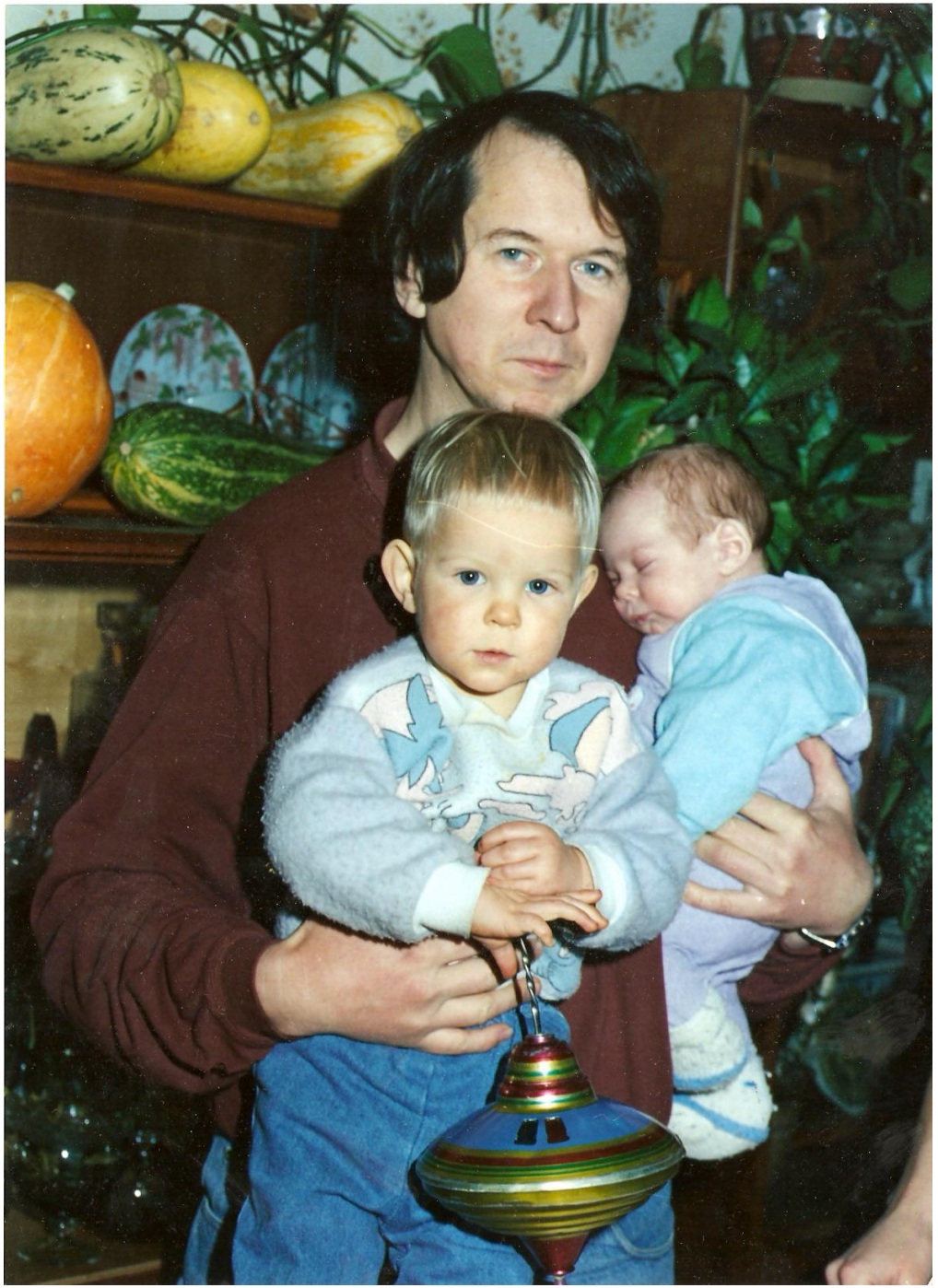
Pavel Buividovich

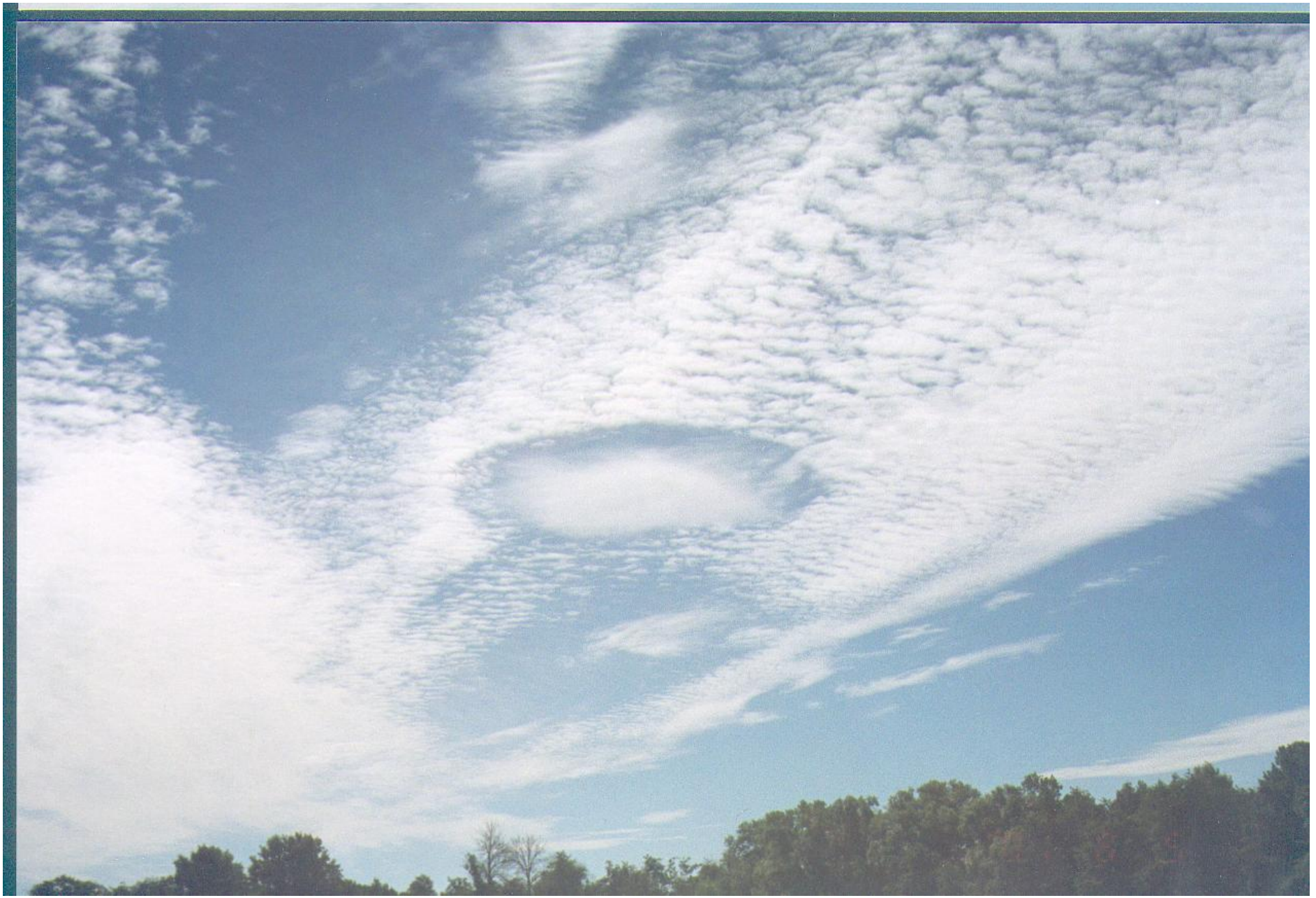
Pavel Boyko

Misha left two sons.

Sergey (20) is a 5th year student at MIPT and a member of LHCb collaboration

Andrey (18) is a 4th year student at the department of Computational Mathematics and Cybernetics of Lomonosov Moscow State University






湯の出
かにの川木
大口水産

Professional activity of Mikhail Polikarpov is well known to the participants of the Conference. What was, probably, clearer seen from close distance is that this activity was based on his moral principles which determined his role as a scientist, teacher, citizen, believer. This explains, in particular, his devotion to going to ever changing frontiers in science, taking care of everyday-life problems of his group, staying in Russia through all these years, and so on.

Valentin Zarharov

I knew Mikhail since many years. He always impressed me by his optimism and engagement to pick up new interesting problems to be solved with lattice methods: e.g. studying the Yang Mills vacuum state with the overlap operator, discussing the entanglement entropy, computing properties of gluon-quark matter in an external magnetic field or in the last period investigating graphene with different lattice geometries. But most important I consider his role to create and maintain a Russian center of lattice field theory and his promotion of many talented young people under the difficult Russian conditions.

Michael Mueller-Preussker

Misha was really a wonderful and attractive person with a gentle mind. He was literally one of great leaders in the world lattice community. His works on topological properties of non-perturbative QCD are world famous and I am very much grateful to him for having able to share a small part of them as an ITEP-Kanazawa collaboration. I believe our long-term collaboration was very fruitful and successful mainly due to Misha's warm and active endeavor. I and many young colleagues of mine are very much obliged to him. In addition to his own scientific works, it is really great that Misha has developed a big nice active lattice group in Russia, raising many brilliant young scientists who are now world-wildly working very actively.

Suzuki Tsuneo

I knew Misha for more than 20 years. He was an amazing person. He founded a highly respected lattice group in Russia, all by himself, carrying the ITEP spirit. His students were world class, some of them made it to the US and elsewhere. And last not least, he converted a barn into a respectable office building on the ITEP site, equipped with computers and printers.

Gerrit Schierholz

Some years ago people were hotly debating the nature of confining configurations in QCD. Misha Polikarpov and I were often on opposite sides of that discussion. You can learn a lot from debating with a worthy and honorable opponent, and that's the kind of opponent that Misha was. He wasn't interested in scoring points in some scientific contest; his interest was in getting to the bottom of things.

Later on Misha and I became collaborators on a number of scientific projects, we also worked together to organize the confinement sessions at the Confinement meetings, and I had a chance to observe Misha's role as a mentor to the younger scientists at ITEP. It was a privilege to work with him.

Misha's premature death came as shock to me, and to many of us. He will be sorely missed in our community.

Jeff Greensite

Misha Polikarpov created and nurtured the Russian Lattice group.

He was always open-minded about new ideas, curious and ready to investigate. He kept us young, and we will miss him.

Philippe de Forcrand

Dear friends of the ITEP group, let me join you in remembering a friend and an outstanding colleague. May be the best way to honour him is to continue what he had started.

Adriano Di Giacomo

I always admired Misha both as scientist and man, looked forward to meeting and discussing with him. I will miss him a lot, and can imagine how much he will be missed by all his colleagues, collaborators and students.

Stefan Olejnik

Needless to say that this is very sad news indeed. I still cannot believe it. I have no idea how lab 191 will continue without such an organizational talent.

Gunnar Bali

The news came like a great blow to me. Only a few weeks ago I was dining and talking a lot with Misha in Benasque. I had the highest consideration for him as a scientist and a human being. I feel that I have lost a friend. My last preprint is dedicated to his memory.

Tony Gonzalez-Arroyo

This is indeed very shocking and tragic news. The sudden death of Mikhail marks not only the loss of a friend but also that of a great scientist. Mikhail was truly instrumental in setting up the lattice group at ITEP, which has produced many outstanding and talented physicists. He will be sorely missed.

Hartmut Wittig

It is hard to express the astonishment and the sadness for such news. This is a major loss for the ITEP group, but it is also a major loss for the whole lattice community.

Massimo D'Elia

Misha was one of my longest time friends from Russia, and one of my hosts when Alice and I first visited Moscow and ITEP. Misha I know was a believer, even during the early times when it was difficult. In Spanish they have an expression, when you go away on a trip, "Vaya con dios" which simply means "Go with God". Perhaps he will. I hope so.

Larry McLerran

The tragic news. A huge loss for the ITEP for science. A huge loss for Russian participation in the FAIR project.

Boris Sharkov

Shocked by the sudden death of Mikhail I. Polikarpov, outstanding scientist and remarkable person.

Lev Okun

I heard his brilliant report a few days ago at a conference of the Institute of Euler in St. Petersburg and I can not believe that I will not meet Misha to discuss the current research issues. He will always be remembered as an outstanding scientist and a wonderful person.

Lev Lipatov

PHYSICS REPORTS (Review Section of Physics Letters) 82, No. 2 (1982) 31–177. North-Holland Publishing Company

RESONANCES IN COUPLED CHANNELS IN NUCLEAR AND PARTICLE PHYSICS

A.M. BADALYAN
ITEP, Moscow, USSR

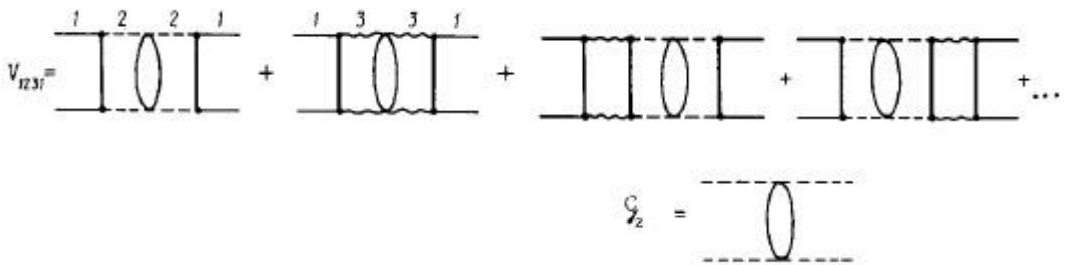
L.P. KOK
Institute for Theoretical Physics, Groningen, The Netherlands

M.I. POLIKARPOV
ITEP, Moscow, USSR

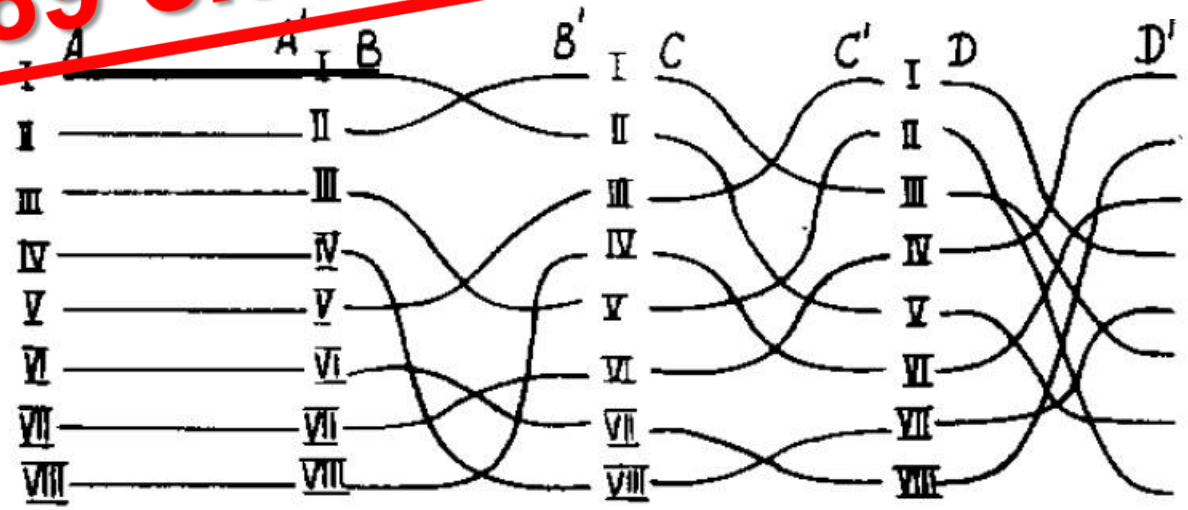
and

Yu.A. SIMONOV
ITEP, Moscow, USSR

Received 20 August 1981



89 citations



"Instantons" of higher order

D. E. Burlankov and V. N. Dutyshev

Gor'kiĭ State University
(Submitted January 4, 1977)
Zh. Eksp. Teor. Fiz. 73, 377–381 (August 1977)

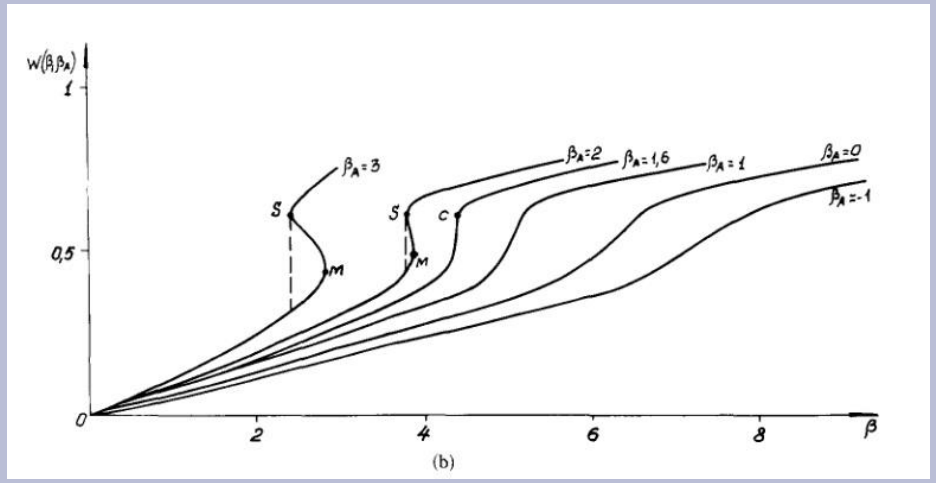
Solutions have been obtained for the Yang-Mills equations for the gauge group $SU(2)$ in a Euclidean space having a topological characteristic larger than one.

$$\frac{d\Phi}{dx}=\frac{1-W^2}{x^2}, \qquad \frac{dW}{dx}=-\frac{(\Phi+n)W}{1-x^2}$$

$$\Phi_n=(n+1)\frac{(1+x)^{n+1}+(1-x)^{n+1}}{(1+x)^{n+1}-(1-x)^{n+1}}-\frac{1}{x}-n,$$

$$W_n=2(n+1)\frac{x(1-x^2)^{n/2}}{(1+x)^{n+1}-(1-x)^{n+1}}.$$

The authors are grateful to A. A. Belavin for multiple discussions which were responsible for the appearance of the present paper, and to M. I. Polikarpov, who proposed the solution (21) for Eqs. (17).



- **Large-N phase transitions**
- **Numerical evidence of the importance of group center for the confinement**

Nuclear Physics B205 [FS5] (1982) 386–400

60 citations

PHASE DIAGRAM OF MIXED LATTICE GAUGE THEORY FROM THE VIEWPOINT OF LARGE *N*

Yu.M. MAKEENKO and M.I. POLIKARPOV

Institute for Theoretical and Experimental Physics, Moscow, USSR

Received 7 January 1982

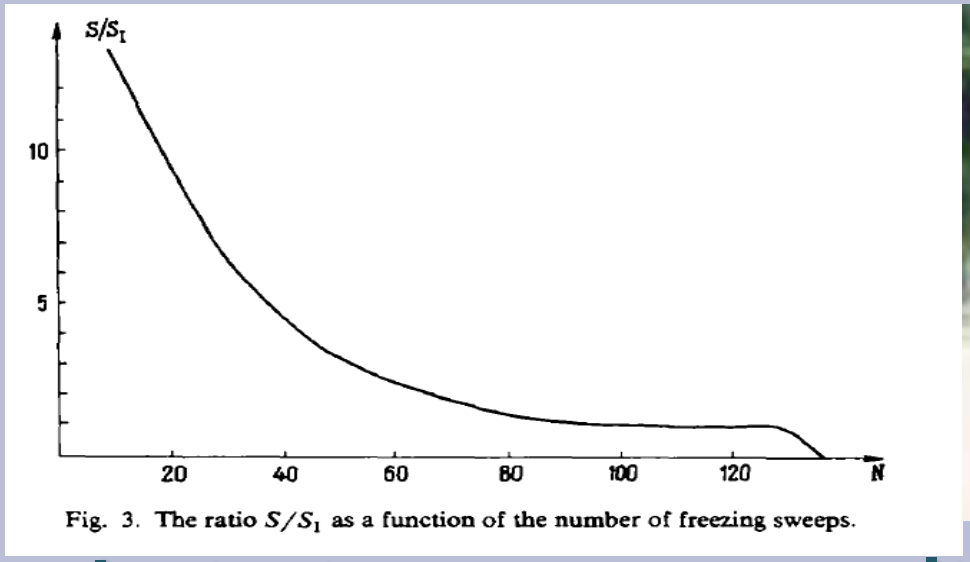
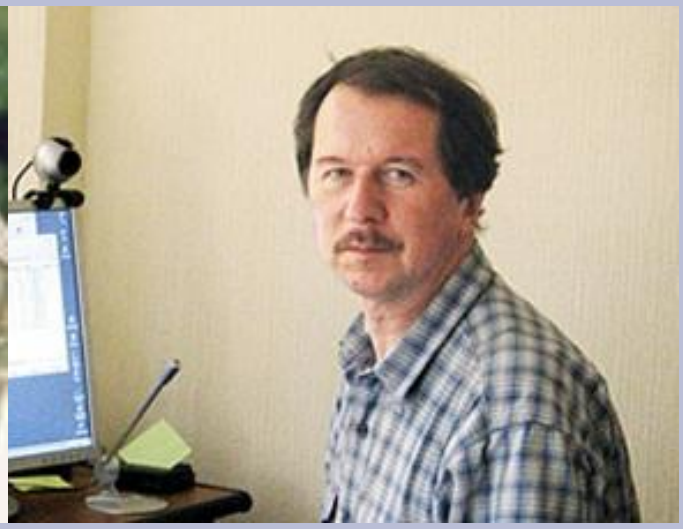


Fig. 3. The ratio S/S_1 as a function of the number of freezing sweeps.



- **Instanton gas as a result of cooling**
- **No string tension from instantons**

65 citations

INSTANTONS AND CONFINEMENT IN THE SU(2) LATTICE GAUGE THEORY

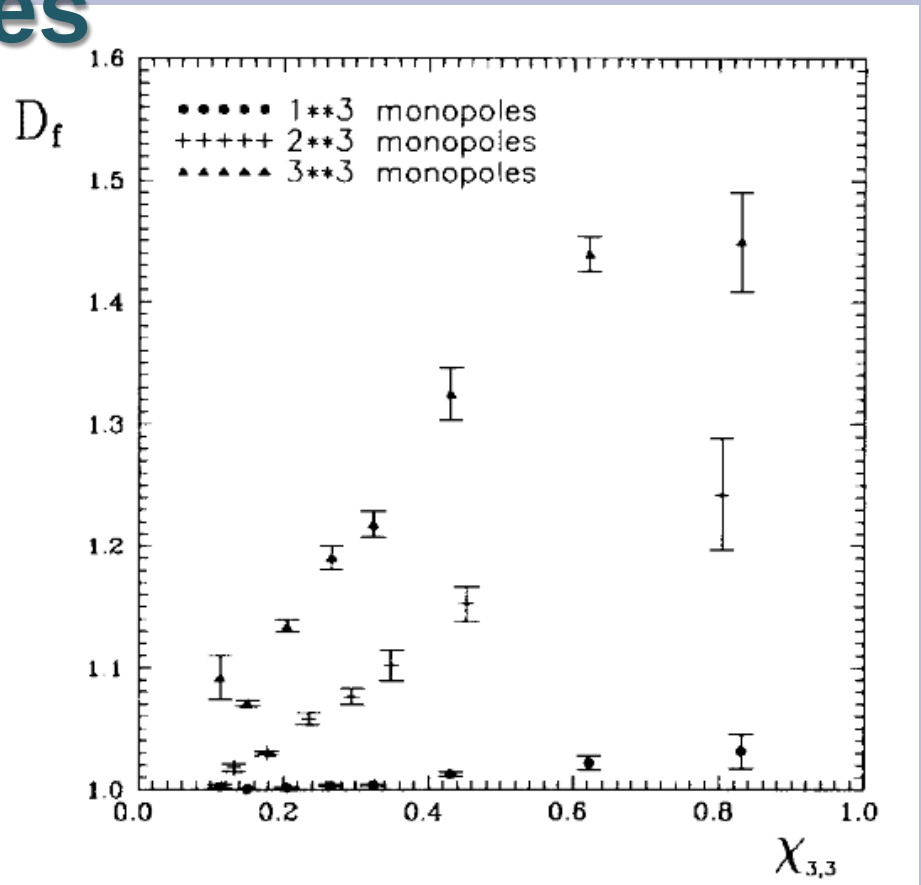
M.I. POLIKARPOV and A.I. VESELOV

Institute of Theoretical and Experimental Physics, B. Cheremushkinskya ul. 25, 117259 Moscow, USSR

Received 19 May 1987

Relation between confinement and Abelian monopoles

91 citations



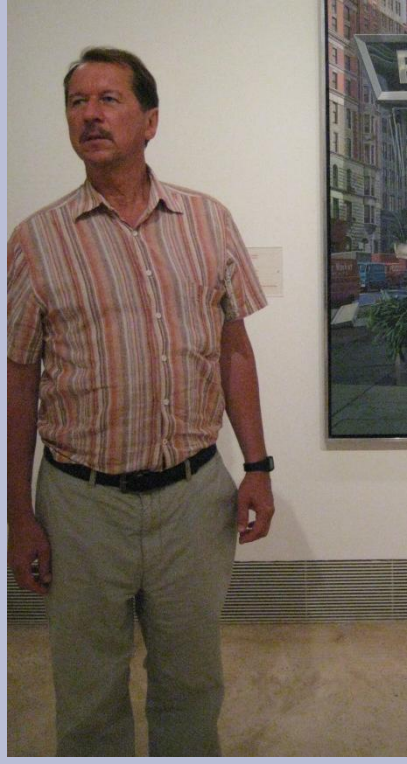
PHYSICS LETTERS B

Extended abelian monopoles and confinement in the SU(2) lattice gauge theory

T.L. Ivanenko, A.V. Pochinsky and M.I. Polikarpov
Institute of Theoretical and Experimental Physics, SU-117 259 Moscow, USSR

Received 20 August 1990

Quantum string representation of Abelian Higgs model (liquid He, superconductors etc.)



103 citations

PHYSICAL REVIEW D VOLUME 53, NUMBER 4 15 FEBRUARY 1996

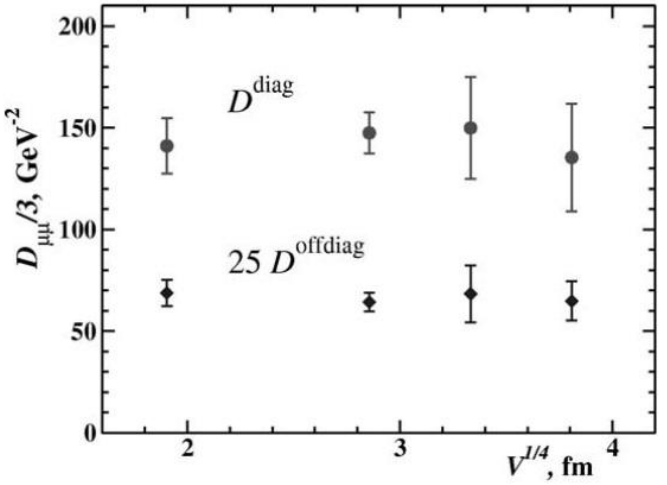
Quantum theory of strings in an Abelian Higgs model

E. T. Akhmedov,[1,2] M. N. Chernodub,[1,2] M. I. Polikarpov,[1] and M. A. Zubkov[1]
[1] *Institute of Theoretical and Experimental Physics, B. Cheremushkinskaya 25, Moscow, 117259 Russia*
[2] *Moscow Institute of Physics and Technology, Dolgoprudny, Moscow region, Russia*
(Received 11 July 1995)

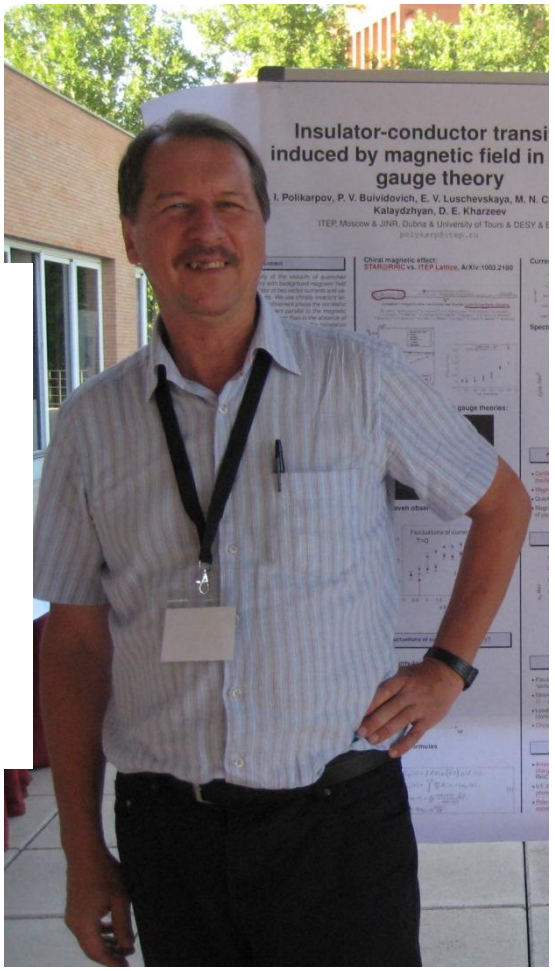
$$\mathcal{Z} = \int \mathcal{D}\tilde{x} J(\tilde{x}) \exp\left\{ -\eta^2 \pi^2 \int_\Sigma \int_\Sigma d\sigma_{\mu\nu}(\tilde{x}) \mathcal{D}_m^{(4)}(\tilde{x} - \tilde{x}') d\sigma_{\mu\nu}(\tilde{x}') \right\}$$




Abelian dominance from gluon propagators



103 citations



ELSEVIER Physics Letters B 559 (2003) 214–222

Abelian dominance and gluon propagators in the maximally Abelian gauge of $SU(2)$ lattice gauge theory

V.G. Bornyakov [a,b,c], M.N. Chernodub [a,b], F.V. Gubarev [a], S.M. Morozov [a], M.I. Polikarpov [a]

[a] *Institute of Theoretical and Experimental Physics, Moscow 117259, Russia*
[b] *Institute for Theoretical Physics, Kanazawa University, Kanazawa 920-1192, Japan*
[c] *Institute for High Energy Physics, Protvino 142284, Russia*

Received 10 February 2003; received in revised form 10 March 2003; accepted 10 March 2003

ABELIAN PROJECTIONS AND MONOPOLES

M.N. Chernodub and M.I. Polikarpov[1]

Institute of Theoretical and Experimental Physics,
B. Cheremushkinskaya 25, Moscow, 117259, Russia

Systematic theory of Abelian monopoles in QCD

140 citations

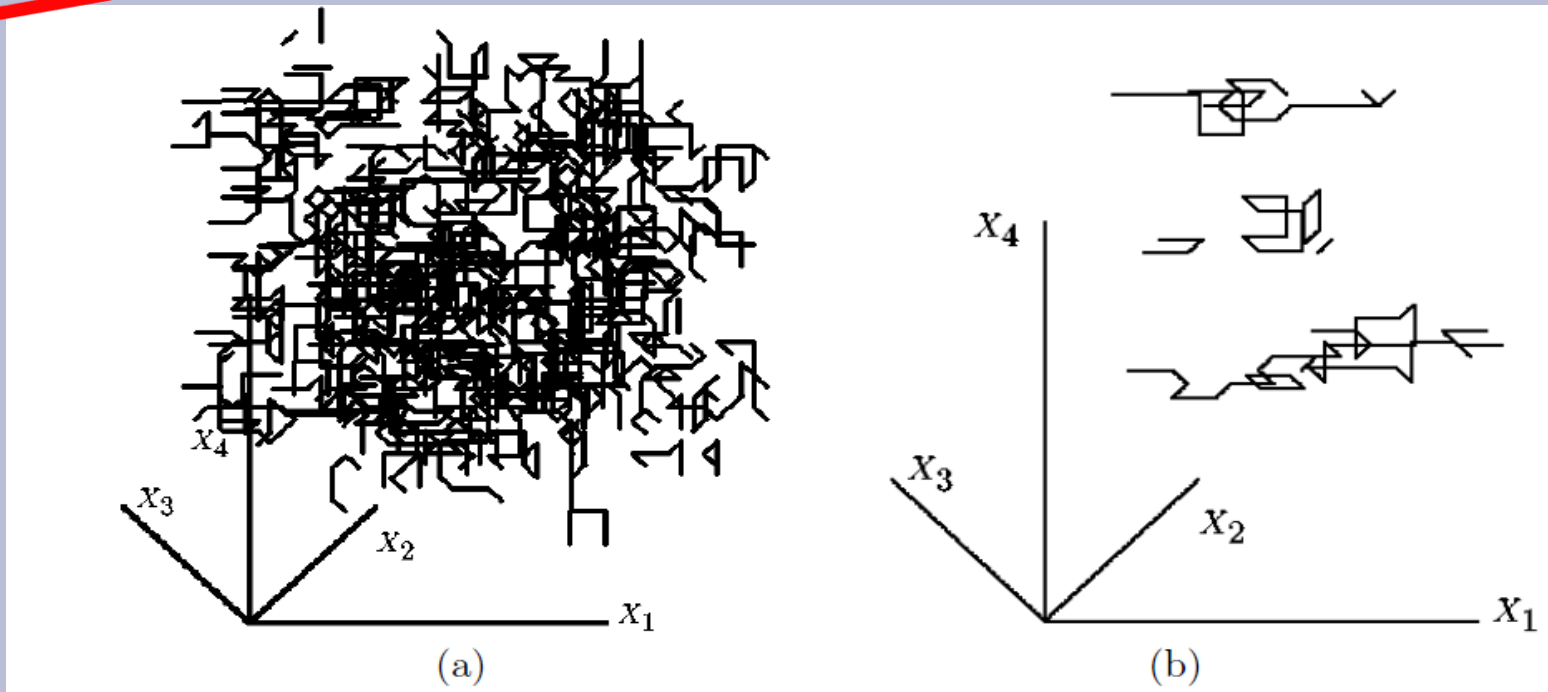
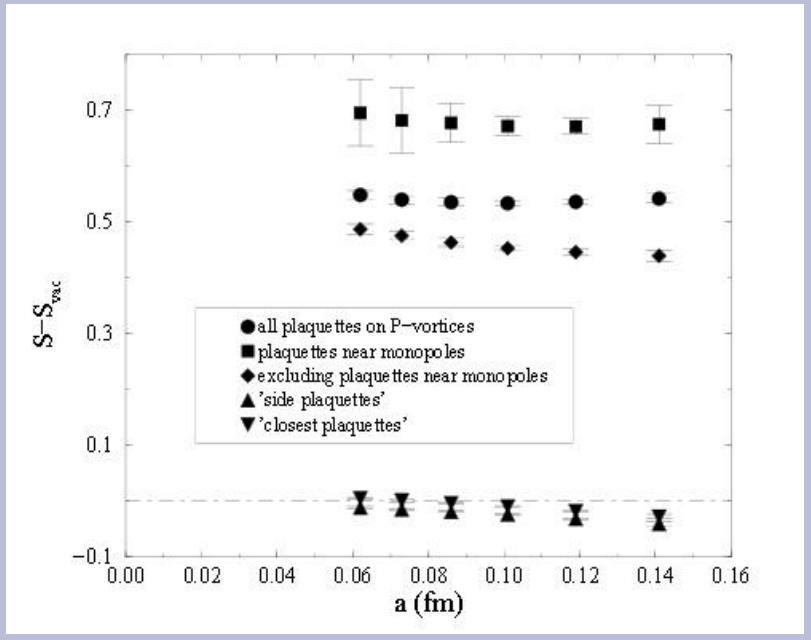


Figure 7: The abelian monopole currents for the confinement (a) ($\beta = 2.4$, 10^4 lattice) and the deconfinement (b) phases ($\beta = 2.8$, $12^3 \cdot 4$ lattice).







Fine tuning of vortex tension vs. entropy

57 citations

ELSEVIER

Physics Letters B 574 (2003) 136–140

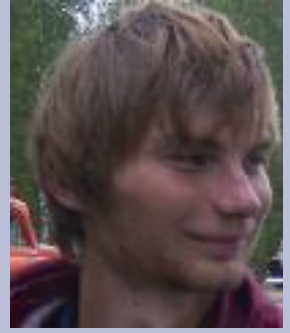
www.elsevier.com/locate/npe

Fine tuned vortices in lattice $SU(2)$ gluodynamics

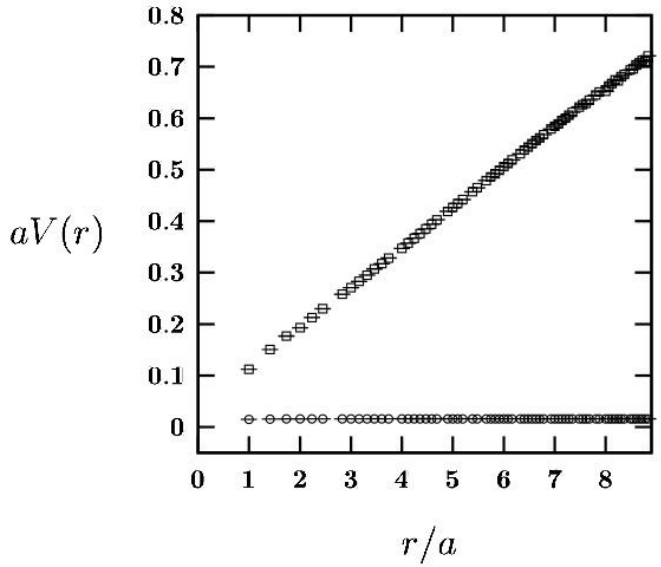
F.V. Gubarev [a], A.V. Kovalenko [a], M.I. Polikarpov [a], S.N. Syritsyn [a], V.I. Zakharov [b]

[a] *Institute of Theoretical and Experimental Physics, B. Cheremushkinskaja 25, 117259 Moscow, Russia*
[b] *Max-Planck Institut für Physik, Föhringer Ring 6, 80805 München, Germany*

Received 10 July 2003; received in revised form 26 August 2003; accepted 26 August 2003



Once more on the interrelation between Abelian monopoles and P-vortices in $SU(2)$ LGT

P.Yu. Boyko [a], V.G. Bornyakov [a,b], E.-M. Ilgenfritz [c,*], A.V. Kovalenko [a], B.V. Martemyanov [a], M. Müller-Preussker [c], M.I. Polikarpov [a], A.I. Veselov [a]

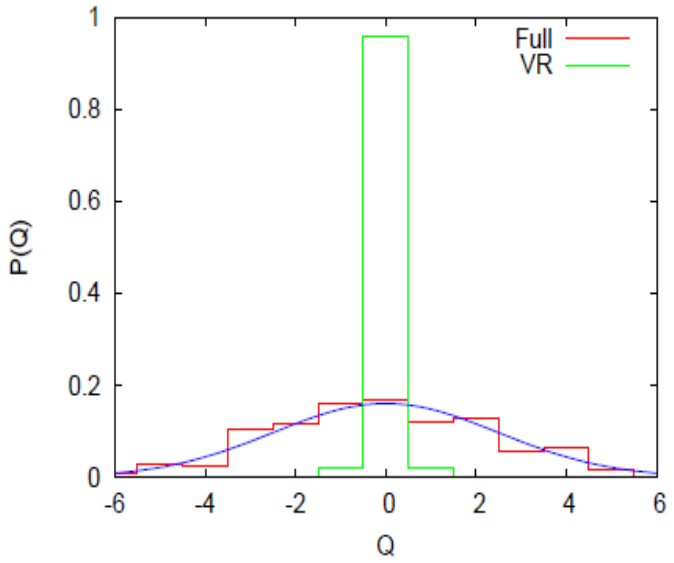
[a] *Institute of Theoretical and Experimental Physics, B. Cheremushkinskaya 25, Moscow 117259, Russia*
[b] *Institute for High Energy Physics, Protvino 142281, Russia*
[c] *Institut für Physik, Humboldt-Universität, Newtonstrasse 15, 12489 Berlin, Germany*

Received 20 July 2006; received in revised form 21 August 2006; accepted 30 August 2006

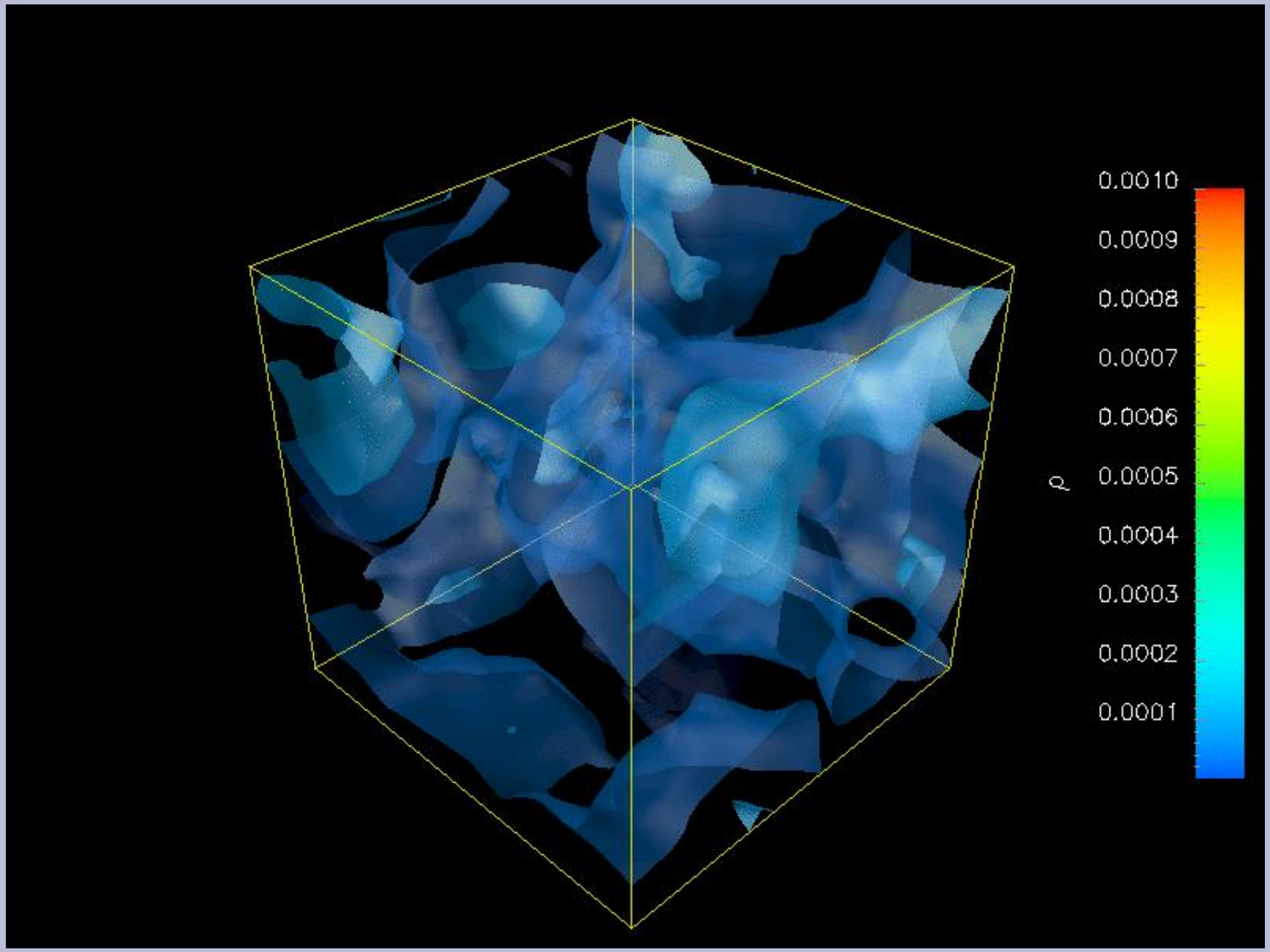
Localization of Low Lying Eigenmodes for Chirally Symmetric Dirac Operator

M.I. Polikarpov*, **F.V. Gubarev, S.M. Morozov and**
ITEP, B. Cheremushkinskaya 25, Moscow, 117259 Russia
E-mail: polykarp@itep.ru, gubarev@itep.ru, smoroz@itep.ru

V.I. Zakharov
MPI, Föhringer Ring 6, 80805, München, Germany
E-mail: xxz@mppmu.mpg.de



3: The histogram of the distribution of the topological charge for full and vortex removed (VR) ations.

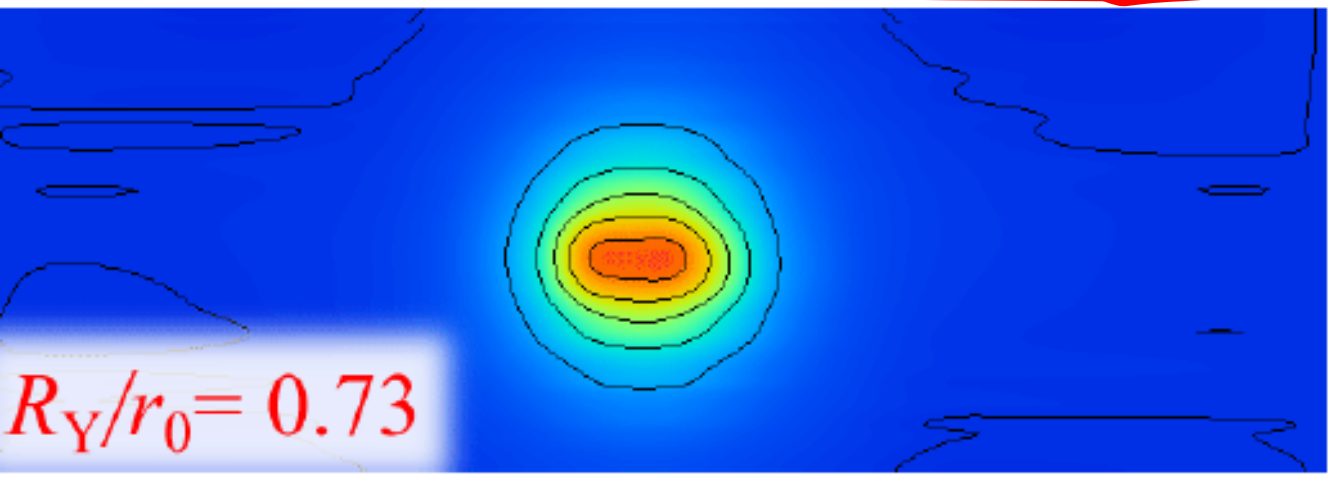


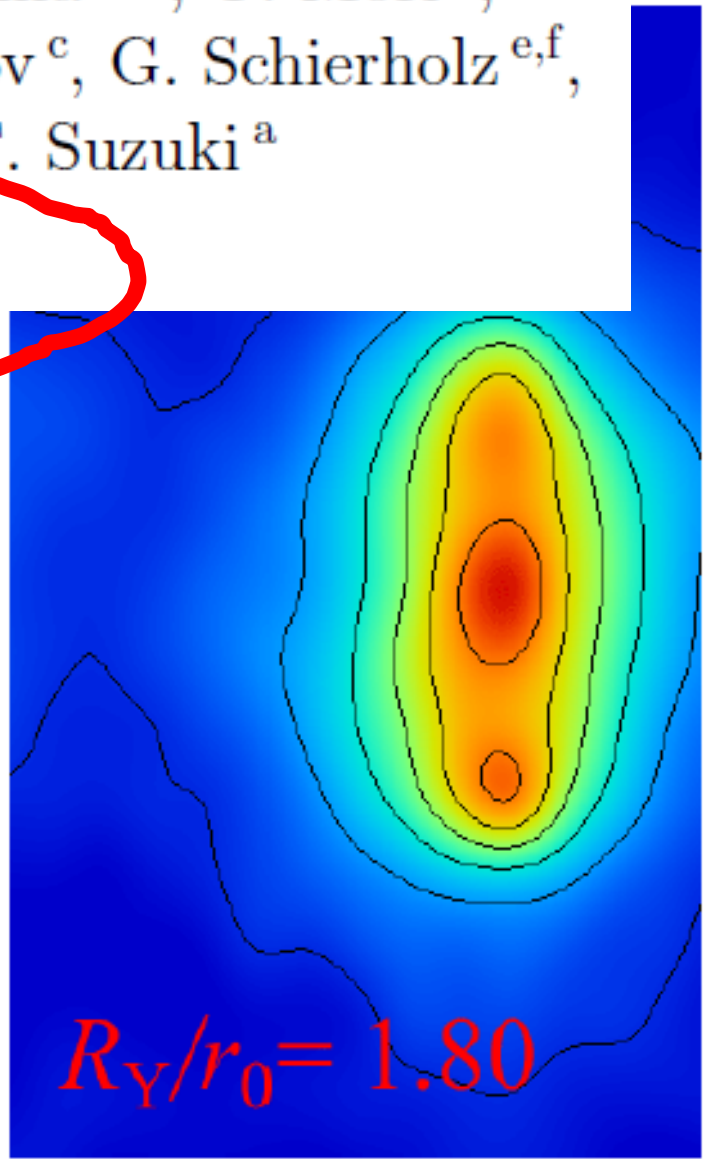
S.Morozov, F.Gubarev, M.Polikarpov, V. Zakharov
Dirac eigenfunctions in uncooled vacuum

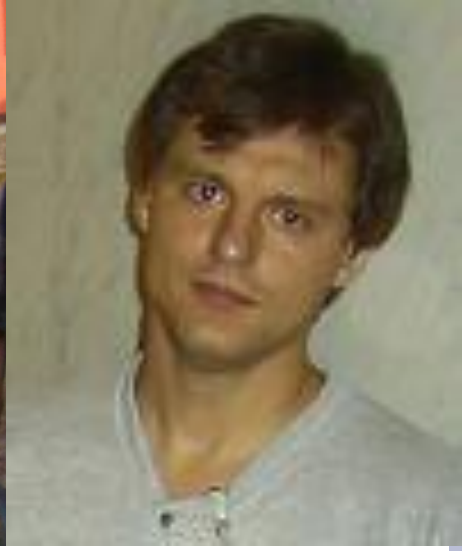
Dynamics of Monopoles and Flux Tubes in Two-Flavor Dynamical QCD

V.G. Bornyakov [a,b,c], H. Ichie [d 1], Y. Koma [a 2], Y. Mori [a], Y. Nakamura [a], D. Pleiter [e], M.I. Polikarpov [c], G. Schierholz [e,f], T. Streuer [e,g], H. Stüben [h] and T. Suzuki [a]

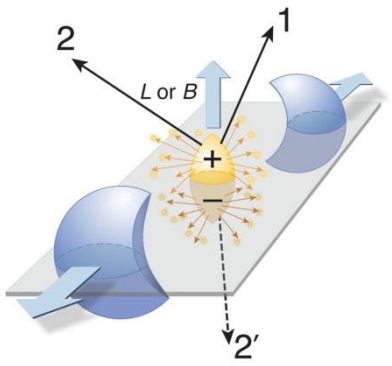
– DIK *Collaboration* –

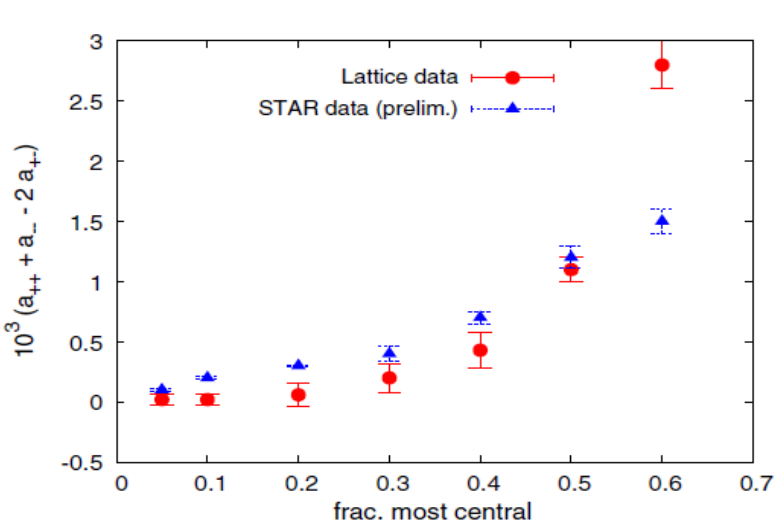






Indications of CME in P-even QCD vacuum





125 citations

PHYSICAL REVIEW D **80,** 054503 (2009)

Numerical evidence of chiral magnetic effect in lattice gauge theory

P. V. Buividovich,[1,2] M. N. Chernodub,[3,4,2] E. V. Luschevskaya,[2] and M. I. Polikarpov[2]

[1]*JIPNR "Sosny," National Academy of Science, Acad. Krasin str. 99, Minsk, 220109 Belarus*

[2]*ITEP, B. Cheremushkinskaya 25, Moscow, 117218 Russia*

[3]*LMPT, CNRS UMR 6083, Fédération Denis Poisson, Université de Tours, 37200 France*

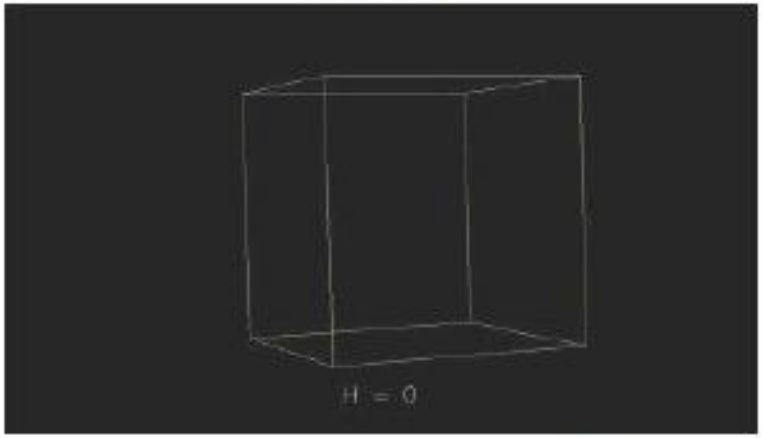
[4]*DMPA, University of Gent, Krijgslaan 281, S9, B-9000 Gent, Belgium*

(Received 12 July 2009; revised manuscript received 13 August 2009; published 21 September 2009)

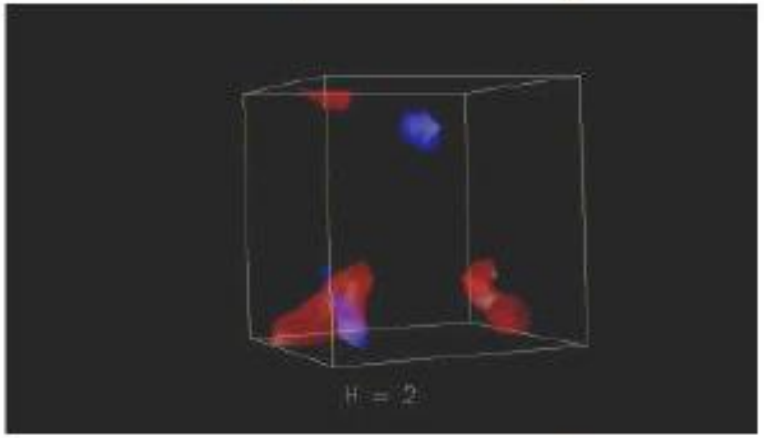
Chiral Magnetic Effect on the lattice, charge separation

Density of the electric charge vs. magnetic field

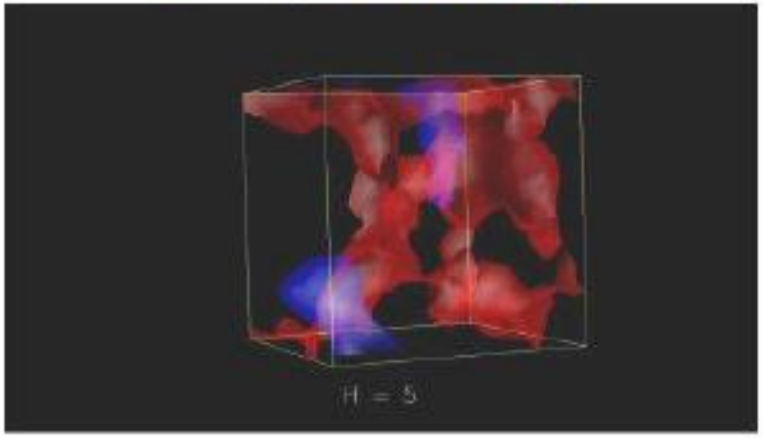
$B = 0$



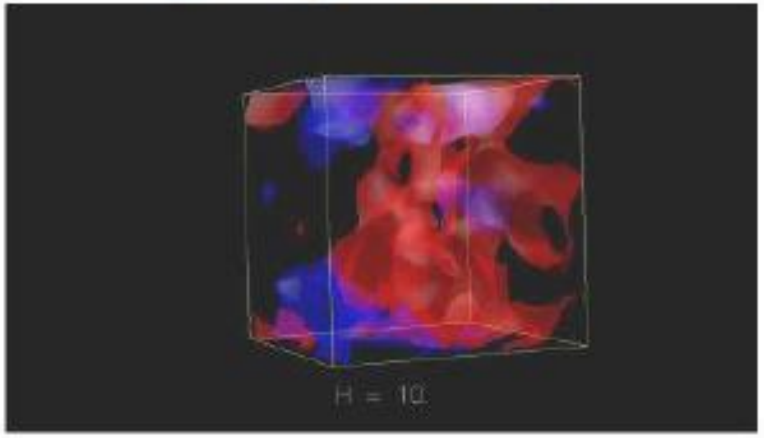
$B = (500\,\mathrm{MeV})^2$

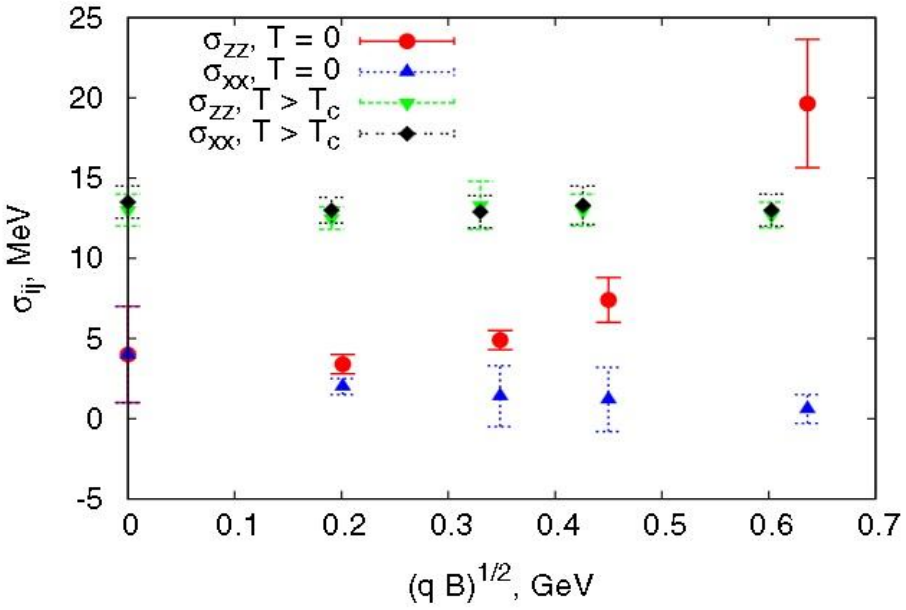


$B = (780\,\mathrm{MeV})^2$



$B = (1.1\,\mathrm{GeV})^2$





Electric conductivity induced by magnetic field

125 citations

PRL 105, 132001 (2010) PHYSICAL REVIEW LETTERS week ending 24 SEPTEMBER 2010

Magnetic-Field-Induced Insulator-Conductor Transition in $SU(2)$ Quenched Lattice Gauge Theory

P. V. Buividovich,[1,2] M. N. Chernodub,[3,4,*] D. E. Kharzeev,[5,6] T. Kalaydzhyan,[7,1]
E. V. Luschevskaya,[1,2] and M. I. Polikarpov[1]

Graphene

Photo: M. Polikarpov's beehives




First-principle result: suspended graphene is conducting!!!

Monte-Carlo study of the semimetal-insulator phase transition in monolayer graphene with realistic inter-electron interaction potential

M.V. Ulybyshev,[1,2,*] P. V. Buividovich,[3,†] M. I. Katsnelson,[4,‡] and M. I. Polikarpov[1,5,§]

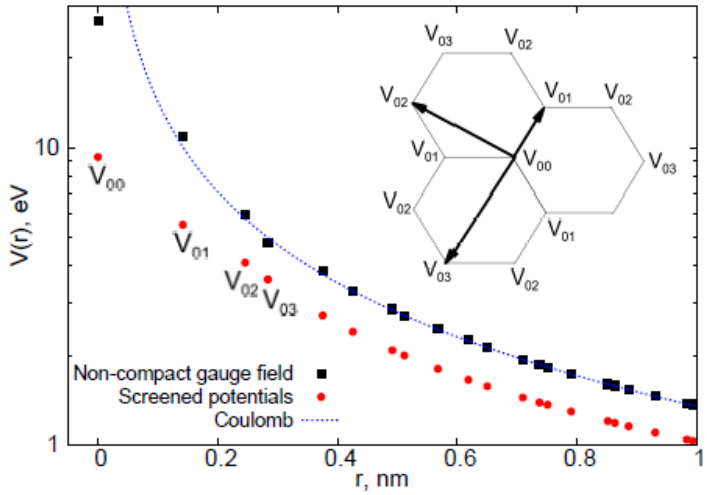


FIG. 1: A comparison of the partially screened Coulomb potential with the exact Coulomb potential and the potential obtained from non-compact gauge field on the hexagonal lattice [3].

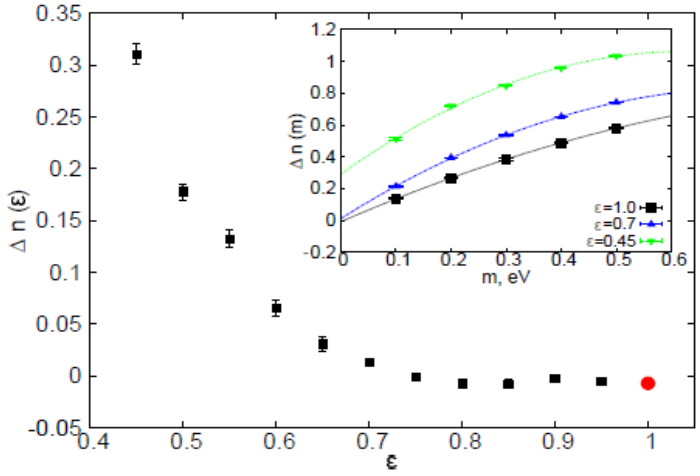
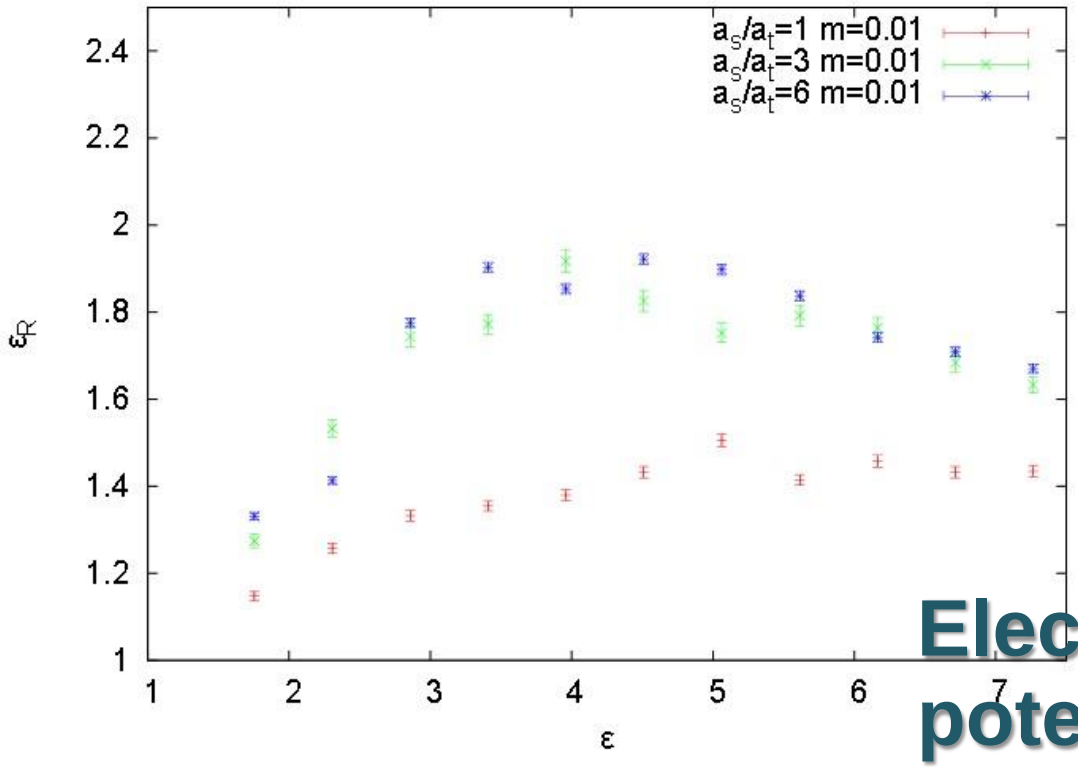


FIG. 2: The dependence of the chiral condensate (11) on ϵ and on m (in the inset) for the 18×18 lattice with $N_t = 20$ and $\delta = 0.1\,\mathrm{eV}^{-1}$. For $\epsilon = 1.0$ we show the results obtained on the 24×24 lattice with $N_t = 40$, $\delta = 0.05\,\mathrm{eV}^{-1}$.



Electron-hole interaction potential from Polyakov loops

ITEP Lattice

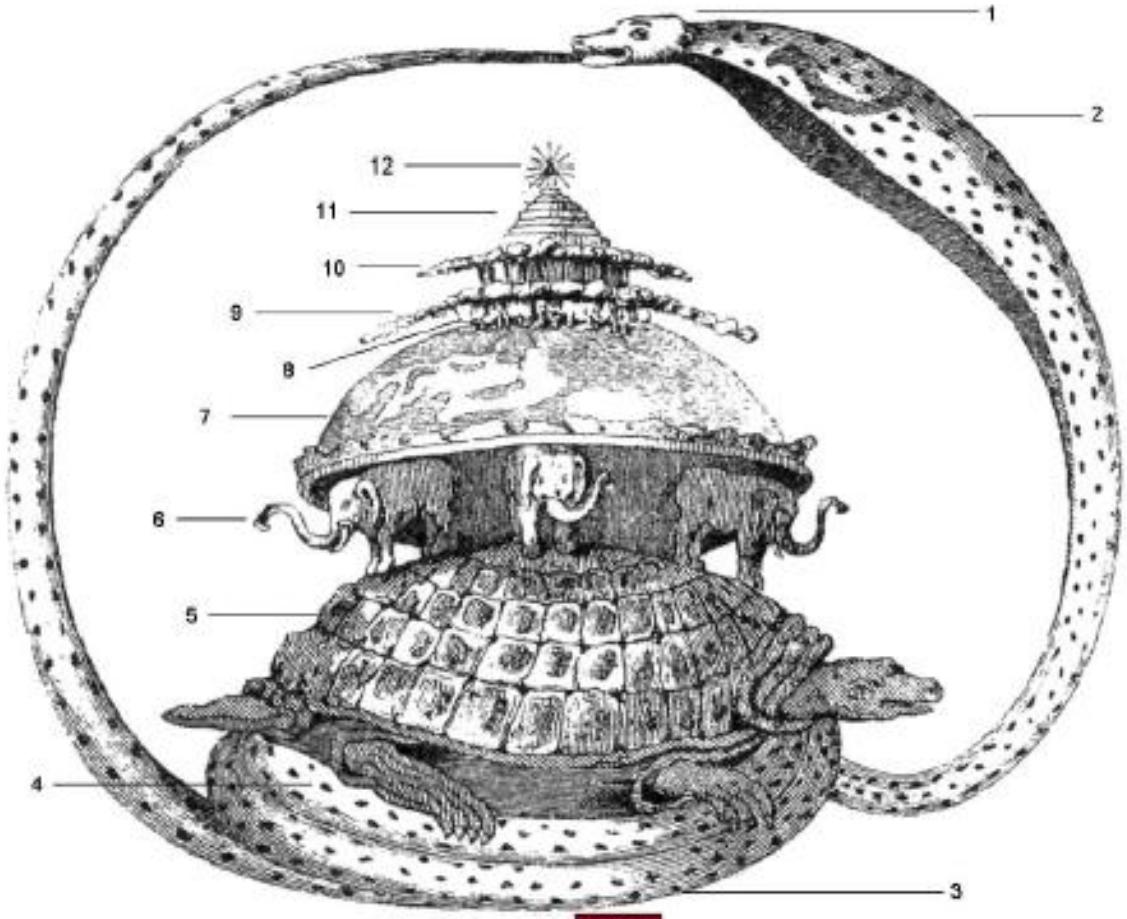
Interaction of static charges in graphene within Monte-Carlo simulation

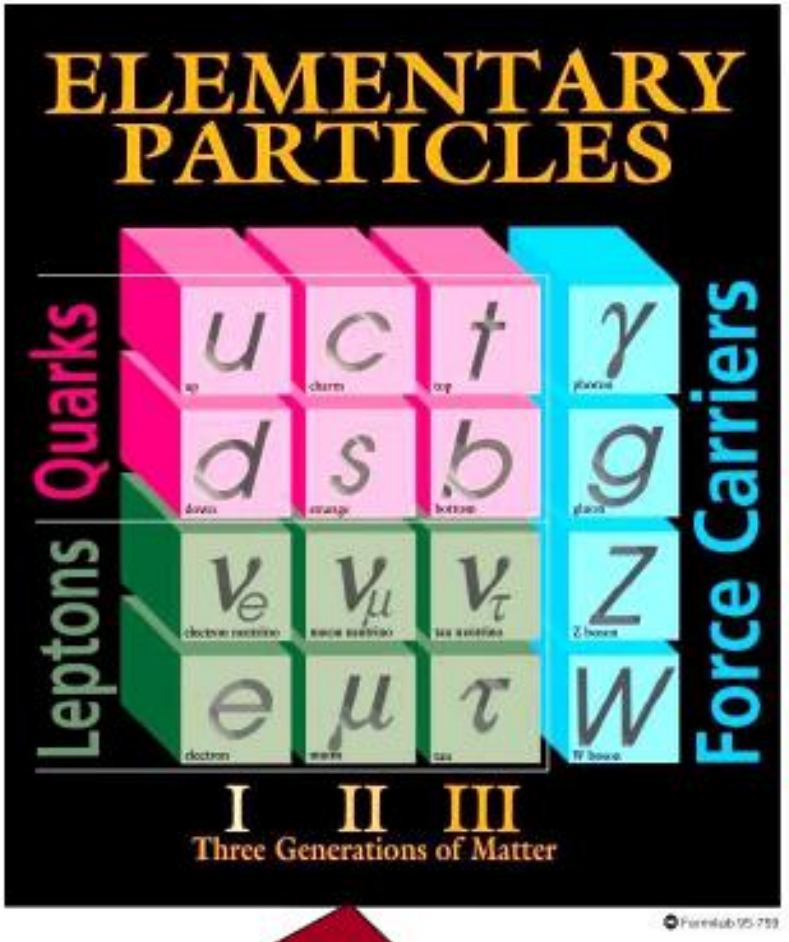
V. V. Braguta,[1,2,*] S. N. Valgushev,[2,3,†] A. A. Nikolaev,[4,‡] M. I. Polikarpov,[2,3,§] and M. V. Ulybyshev[2,5,¶]

FAIR
Facility for Antiproton and Ion Research in Europe GmbH

“Graphyn” and “Stakan” supercomputers @ ITEP

Computer simulations help to unify physical systems





QCD confinement problems
Quark-Gluon plasma in heavy ion collisions
Graphene

Main results:

Sorry, we didn't find all necessary photos

Backup slides

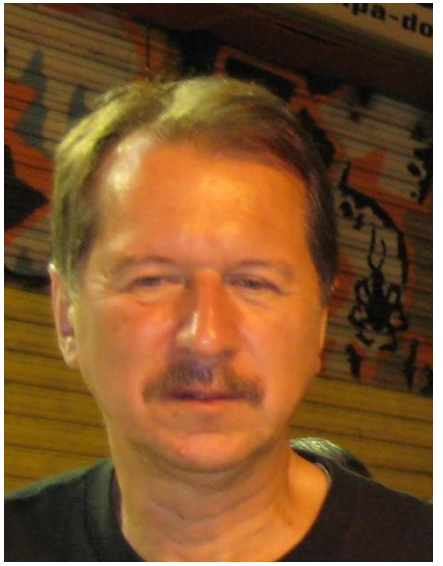
- Я просто потрясён ....
  Буквально пару дней назад переписывался с М.И.
  и строил планы, у нас их было очень много. Это ужасная потеря, мне
  трудно поверить.
- Максим Чернодуб

- Трагическая новость.
  Огромная потеря для ИТЭФ, для науки.
  Огромная потеря для Российского участия в проекте ФАИР.
  Мои глубокие соболезнования родным Михаила.
  Борис Шарков.

- Потрясён внезапной смертью Михаила Игоревича Поликарпова --- выдающегося учёного и замечательного человека. Приношу глубокие соболезнования родным, близким, друзьям.
  Лев Окунь

- Выражаю глубокое соболезнование семье и коллегам Михаила Игоревича
  Поликарпова. Безвременный уход из жизни этого выдающегося учёного --
  невосполнимая потеря для нашей науки.
  С.Герштейн

- Дорогие коллеги,
  Примите пожалуйста мои искренние соболезнования в связи с неожиданной смертью Миши Поликарпова. Я слышал его блестящий доклад несколько дней назад на конференции Института Эйлера в Петербурге и я не могу поверить, что уже не увижу Мишу, чтобы обсудить с ним текущие научные проблемы. Он навсегда останется в нашей памяти как выдающийся ученый и замечательный человек. Лев Липатов



- потрясен и опечален внезапной смертью Миши Поликарпова.
- В Приложении - соболезнования наших коллег, профессоров кафедры физики высоких энергий СПбГУ. Не сочтите за труд распечатать наше письмо и огласить на панихиде.
- Крепитесь
- Александр Андрианов

- Дорогие друзья,

  Потрясен известием о Мишиной смерти. Только что сидели с ним, обуждали его
  доклад на нашей конференции, строили какие-то планы на будущее... Он
  объяснял мне, что такое графен...

  Миша был замечательный ученый, очень добрый человек, большой оптимист. Я
  очень многому от него научился. И теперь его будет очень не хватать...
  Светлая ему память...

  Витя Петров СПб

- Дорогой Виталий и все сотрудники лаборатории 191, мы потрясены этой прискорбной вестью. Примите наши
глубокие соболезнования по поводу безвременной кончины Михаила Поликарпова.

Я лично знал его очень много лет и был
тому счастлив.
Вчера утром я отправил ему краткое описание новой совместной работы, план которой мы обсуждали по Скайп два
дня назад. Предварительно мы это согласовали - что будем делать и как. Мы
обязательно закончим эту работу.

Владимир Скалозуб

- Днепропетровск

- **Глубоко скорбим о преждевременной кончине Миши Поликарпова,прекрасного человека и физика.Передаем соболезнования его семье.**
  Лариса Лаперашвили
  Владимир Вайнзберг
  Игорь Лебеденко
  Наталья Деева

- **Потрясена этим трагическим известием. Мои соболезнования близким и всем нам = уходят лучшие, неравнодушные.**
  Л.Богданова

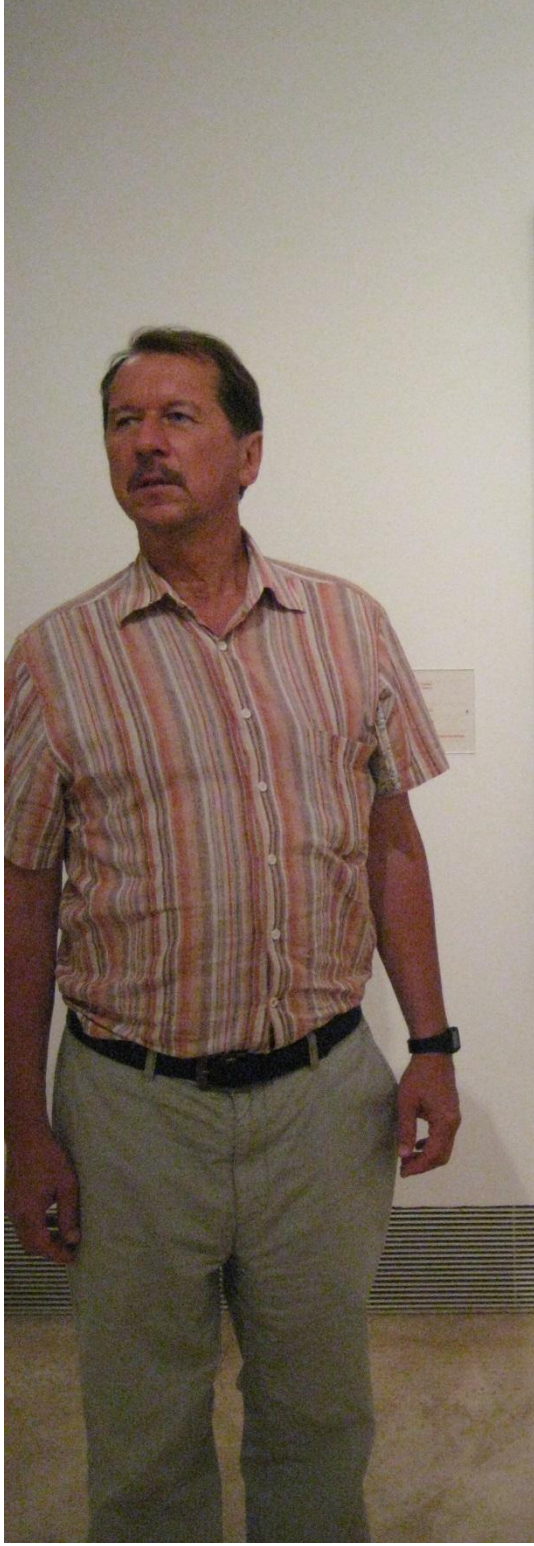
- Dear Mrs Svetlana Polikarpova,
- Misha was really a wonderful and attractive person with a gentle mind. He was literally one of great leaders in the world lattice community, known from many influential papers and oral presentations. Nevertheless he was so gentle and mild-mannered contrary to other leaders most of who are asserting themselves so much at any time. ...
- In addition to his own scientific works, it is really great that Misha has developed a big nice active lattice group in Russia, raising many brilliant young scientists who are now world-wildly working very actively...Misha is gone to heaven. I miss him so much and he will live in my heart forever. My thoughts and prayers are with you and your family at this difficult time. If there is anything I can do for you, please let me know.
- With best regards,
- Tsuneo Suzuki.

- Dear Vitaly,

  the news, which I got first from Maxim Chernodub, came like a great blow to me. Only a
  few weeks ago I was dining and talking a lot with Misha in Benasque. I had the highest consideration for him as a scientist and a human being. I feel that I have lost a friend. My last preprint, with Masanori Okawa and Margarita Garcia Perez, is dedicated to his memory.
  Please transmit my condolences to all his friends and colleagues at ITEP.

  Tony Gonzalez-Arroyo

  Madrid



- Dear Vitaly,

  Thank you very much for letting me know about this very sad news. I have
  not had contact with Misha lately, but I very vividly remember a visit
  in Moscow at the end of the eighties, were Misha took exceptionally good
  care of Gerrit and myself. In return Misha visited me in Juelich in 1990, were we had a very fruitful collaboration. It is a great loss for the lattice community and for ITEP. I met Misha's wife only once. If you
  get a chance, please, tell her how much I enjoyed being with Misha at
  that time. She has all my sympathy. Thanks also for your description of Misha's work, much of which I was not aware of.

  With my best regards

- **Uwe-Jens Wiese**
- Bern

- Dear Vitaly,

  this came as a completely unexpected shock to us. Did he have a heart attack ? (He always looked completely healthy to m Everybody here who knew him shares y sadness over his death.

  Best regards

  Andreas Schaefer
- Regensburg

- Dear Vitaly,

  I already heard the bad news from Andrei Kataev. Thank you
  for compiling this email and for thinking of me. Needless
  to say that this is very sad news indeed. I still cannot believe it. Unfortunately, when Misha was in Regensburg a
  few months ago.. I returned from some workshop on the day
  he left. So we only met near the toilet door for a little chat, before he had to rush to the airport. This was the last time I saw him.

  I have no idea how lab 191 will continue without such an
  organizational talent.

  All the best,

  Gunnar Bali

- Regensburg

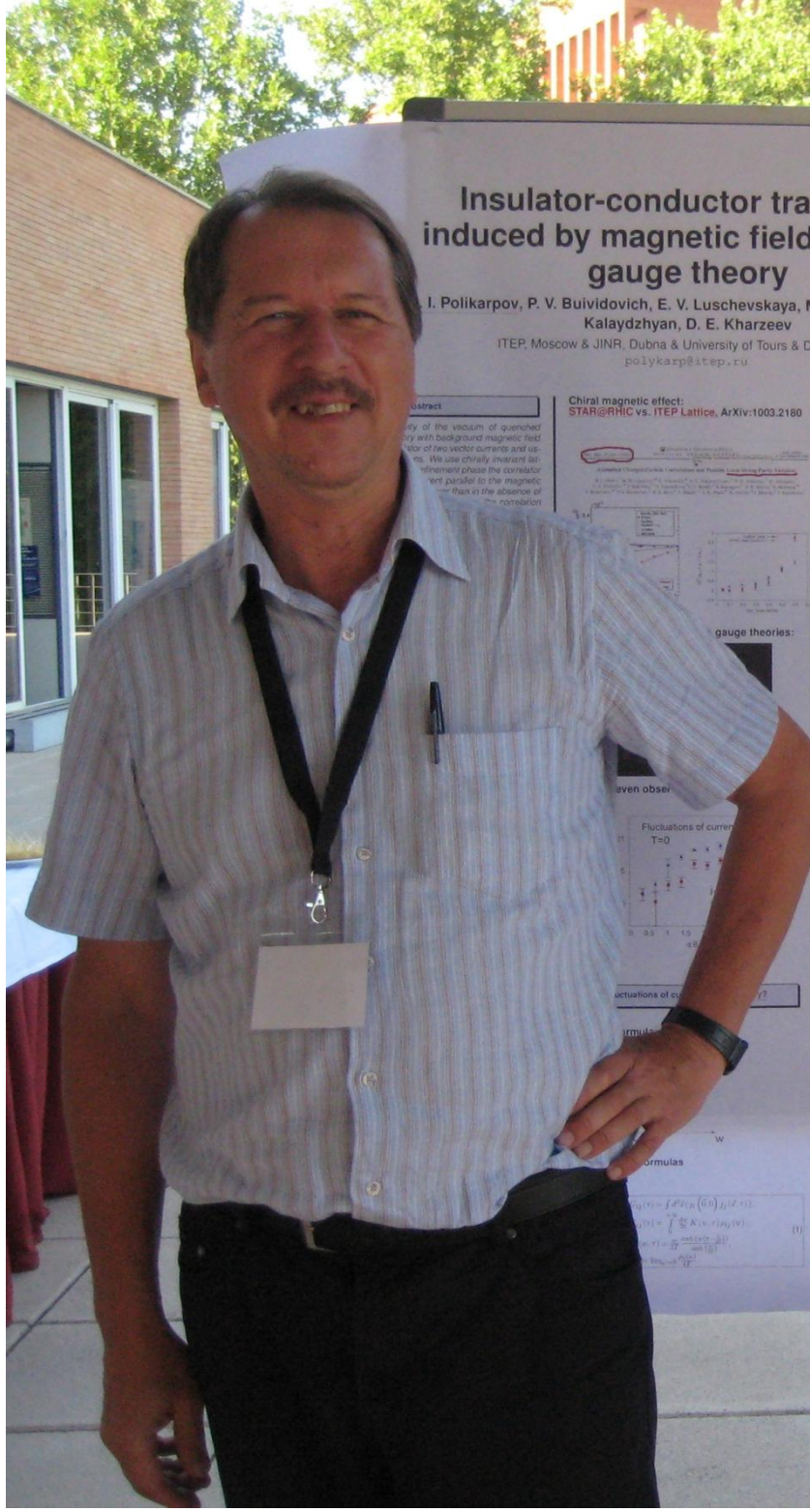
- Dear Vitaly, dear colleagues and friends in the ITEP lattice group,

  Thjs is really a very sad news, a hard-to-believe one. I always admired Misha both as scientist and man, looked forward to meeting and discussing with him. I will miss him a lot, and can imagine how much he will be missed by all his colleagues, collaborators and students.

  I would like to express my deepest sympathy to you all. Please, pass my condolences also to Misha's family.

  Yours sincerely,
  Stefan Olejnik.

- Bratislava



- Larry McLerran wrote:
- Dear Vitya and Misha,
  Dima Kharzeev just told me the sad news that Misha Polikarpov died. Very very sad. He was young and seemed
  to be in good health. He was one of my longest time friends from Russia, and one of my hosts when Alice and I first visited
  Moscow and ITEP. He gave us one of the finest quotes we ever had: While touring the Tretyakov Gallery, towards the end we came to the rooms of Socialist Realist paintings. They were really awful. Alice skipped ahead with Misha, and went outside. Alice commented negatively on the paintngs and Misha simply said, "Alice, you are in Wonderland."
  Misha I know was a believer, even during the early times I visited when it was difficult. In Spanish they have an expression, when you go away
  on a trip, "Vaya con dios" which simply means "Go with God". Perhaps he will. I hope so.
  ciao,
  Larry

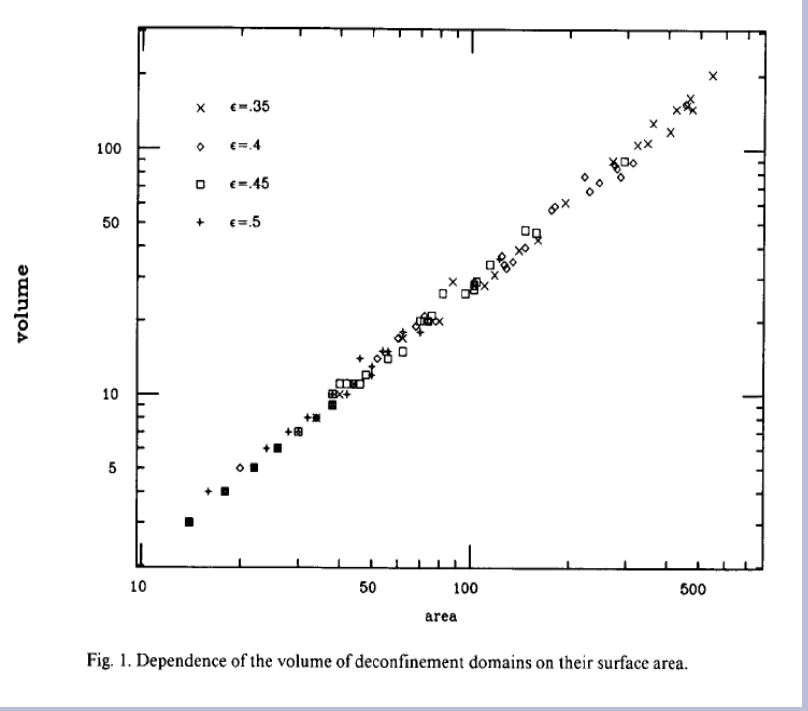


Fig. 1. Dependence of the volume of deconfinement domains on their surface area.

Fractal objects in QCD vacuum

FRACTAL PROPERTIES OF THE DECONFINEMENT DOMAINS IN THE SU(2) LATTICE GAUGE THEORY

M.I. POLIKARPOV

Institute of Theoretical and Experimental Physics (ITEP), SU-117 259 Moscow, USSR

Received 4 November 1989

It is shown that the domains of deconfinement phase in the SU(2) lattice gauge theory have noninteger dimension. Near the deconfinement phase transition the logarithm of the domain's volume is proportional to the 1.12th power of the surface area of the domain.