

# IR location for the shallow site near Dubna

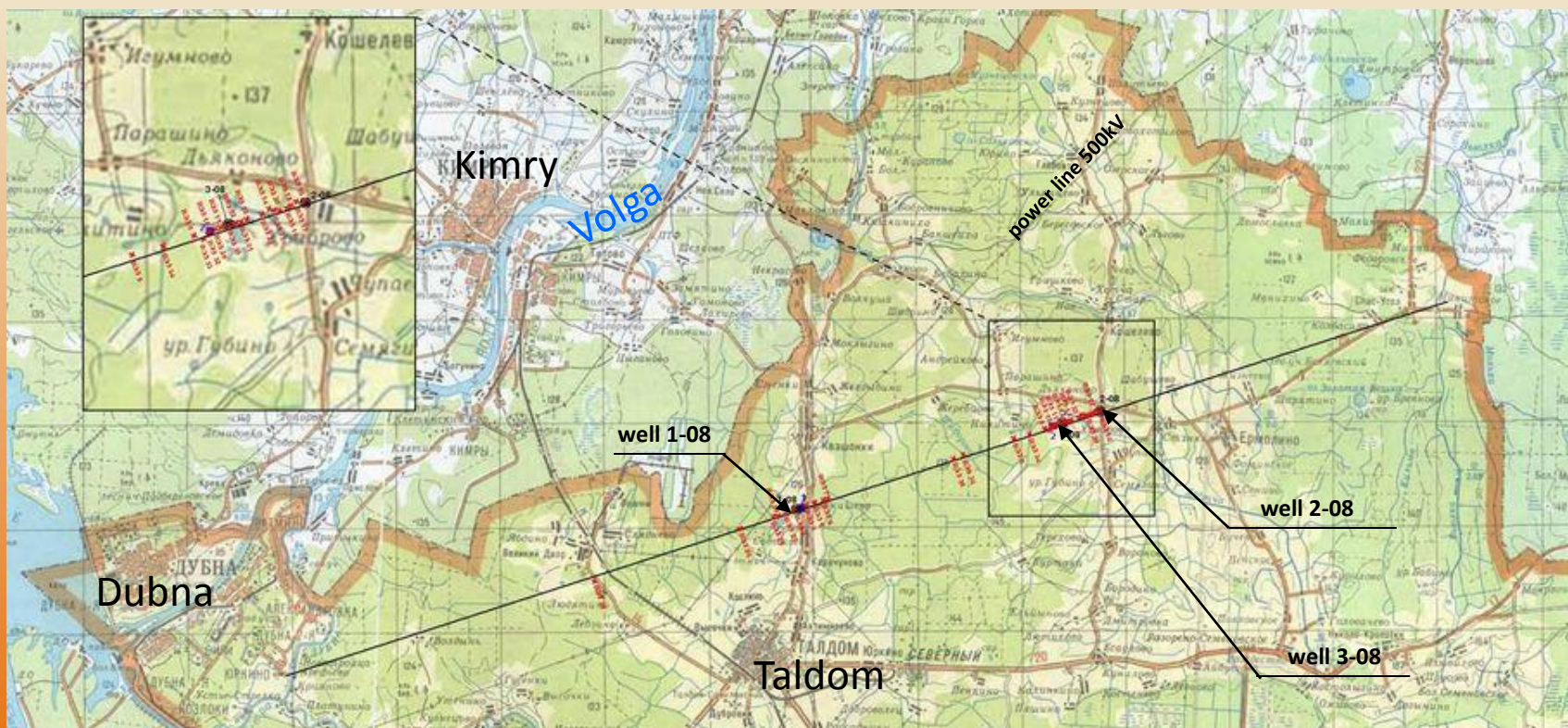
A. Dudarev

JINR

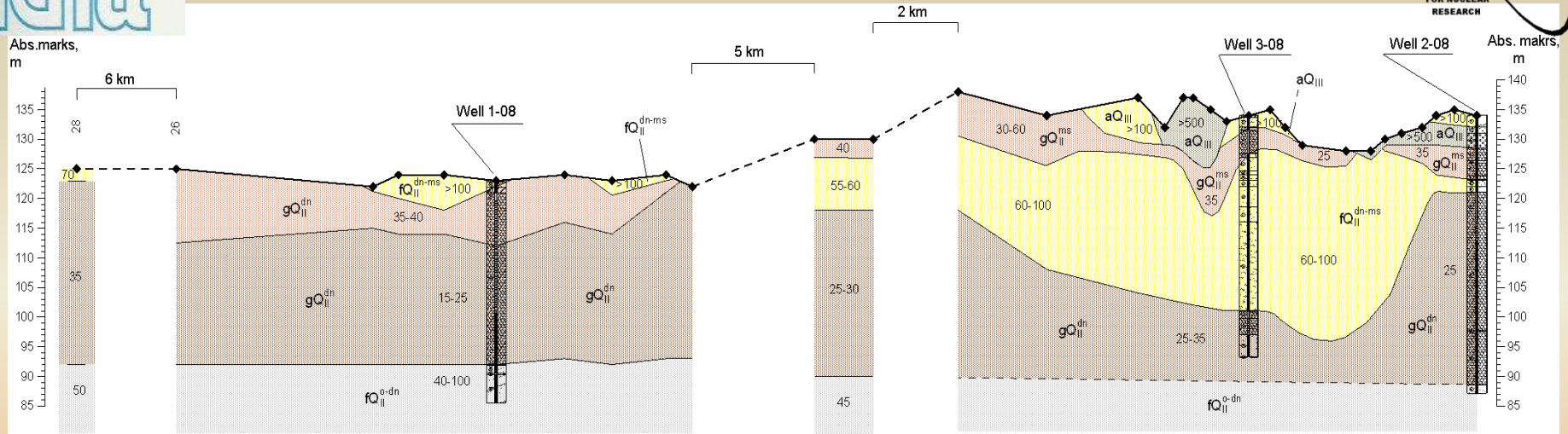
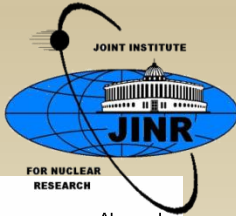
# PRELIMINARY GEOLOGICAL ENGINEERING SURVEY (OCTOBER - NOVEMBER 2008)

- drilling of 3 wells in depth of 36.0-47.0 m with full core extraction;
- selection of 40 monoliths of soil and 16 samples of disturbed soil for laboratory analysis;
- selection of 10 probes of ground water for chemical analysis;
- gamma-ray logging, thermometry, vertical seismic profiling, surface seismic survey
- 35 points of vertical electric sounding;

The aim: to confirm the presence of thick solid stratum of moraine loam



# DETAIL OF THE GEOLOGICAL CUT FOR THE DUBNA SAMPLE SITE TOGETHER WITH SOIL BORING PROFILES



- I geoelectrical horizon: drift clay of Moskovian and Dnieper glaciation period
- II geoelectrical horizon: drift clay of Dnieper glaciation period
- III geoelectrical horizon: fluviog-lacial sediments of the Okian-Dnieper interglacial period

- IV geoelectrical horizon: Fluviog-lacial sediments of the Dnieper-Moscovian interglacial period
- V geoelectrical horizon: alluvial sediments

◆ - Points of the Vertical Electric Sounding measurements

The obtained data (geological structure and hydro-geological conditions, geotechnical soil properties, etc.) are favorable for placing the linear collider in the investigated territory. The results contained in the GSPI Soil Boring Report supports the positioning of a site that is compatible with the current ILC criteria in the Dubna area and supports a **near surface design solution**.

A. V. Kurnaev et. al. Report on the Results of the Preliminary Geological Engineering Surveys Along the Supposed Route of the International Linear Collider (ILC) in Taldom Area of the Moscow Region, GSPI, Rosatom, Moscow (2008).



# SCOPE OF WORK THAT COULD BE PROVIDED TO GSPI

1. Identification of Optimal ILC location for Dubna sample site.

Based on the results of the preliminary engineering-geological investigations and topographic maps of the Moscow region optimal ILC location will be defined.

2. Additional field investigation for site definition (including geophysical investigation, boring of additional wells soil samples withdrawal, laboratory investigation etc.).

3. Alternative tunnel configuration for shallow siting. Cost estimation.

The aim of this task is to evaluate the possibility and provide cost estimation based on a work breakdown structure (WBS).

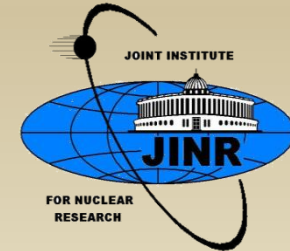
4. Analysis of life safety and egress strategy of alternative tunnel configuration.

## RESULTS OF GSPI GEOLOGICAL INVESTIGATION

Joint ILC GDE & JINR Report (coming soon):

“Dubna Site Investigation: an Evaluation of a Proposed Site for the International Linear Collider near Dubna, Moscow Region, Russia”

# JOINT JINR-GSPI PROJECTS



## 2008 Report on the results of the preliminary geological engineering surveys



State corporation for nuclear energy and industry "ROSATOM"

Governmental Unitary Enterprise

The State Specialized Projecting Institute

107078, Russia, Moscow, Novoryazanskaya str., 8a, Fax: +7499 261-7264, Phone: +7495 988-8050, add. 8285, E-mail: [gsi@gsi-minatom.ru](mailto:gsi@gsi-minatom.ru)

Department of complex engineering prospecting

### REPORT

on the results of the preliminary geological engineering surveys along the supposed route of the International Linear Collider (ILC) in Taldom area of the Moscow region

A. V. Kurnaev, V. A. Kozhanov, V. S. Sokolov, A. A. Krestinin,  
A. G. Chernyatin, I. P. Shronina, I. O. Gusakov, A. P. Krivosheeva

2008

## 2010 Identification of Optimal ILC location for Dubna sample site

ГОСУДАРСТВЕННАЯ КОРПОРАЦИЯ ПО АТОМНОЙ ЭНЕРГИИ «РОСАТОМ»  
ОТКРЫТОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО  
«ГОСУДАРСТВЕННЫЙ СПЕЦИАЛИЗИРОВАННЫЙ ПРОЕКТНЫЙ ИНСТИТУТ»  
(ОАО «ГСПИ»)

Определение оптимального расположения трассы  
международного линейного коллайдера  
на территории Талдомского района Московской области

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В.А. Кожанов

2010

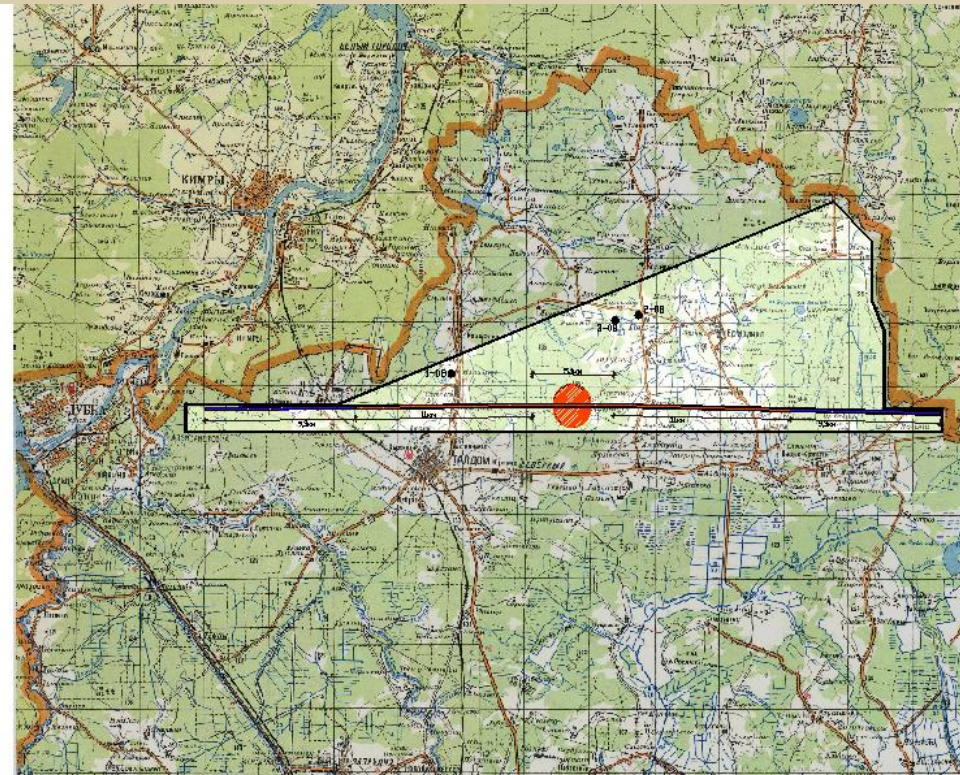
# IDENTIFICATION OF OPTIMAL ILC LOCATION FOR DUBNA SAMPLE SITE

Main goal of the work:

to restrict size of the area for further possible geological survey

Main requirements for optimal location:

- minimal populated territory;
- engineering infrastructure of the territory (roads, power sources, etc.);
- results of preliminary geological survey



Условные обозначения

— [ стадия	— граница оптимального размещения
— ] стадия (развитие)	● 2-08 — ранее пройденные скважины

ЭЛЕКТРОПОДСТАНЦИЯ

■ Понижающая трансформаторная подстанция

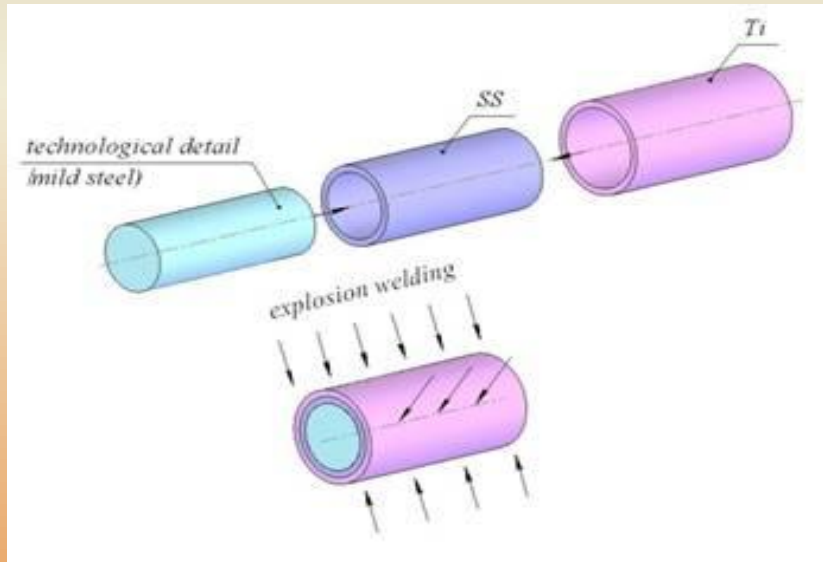
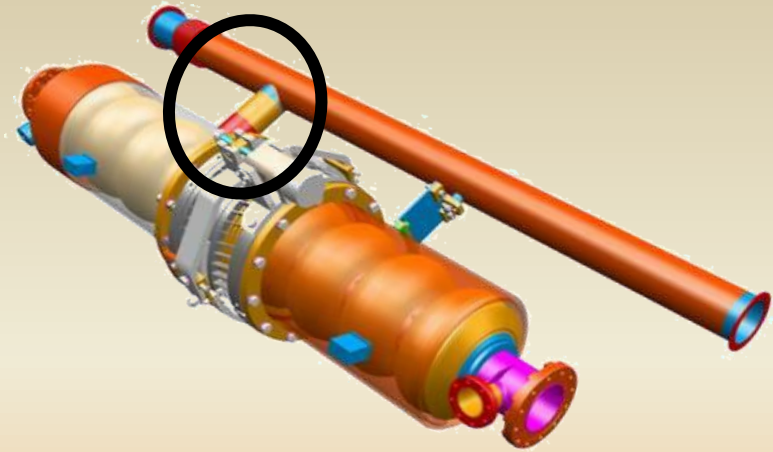




# OTHER ILC ACTIVITY AT JINR

## Explosion welding of bimetal tubes

Ti-SS and Nb-SS (in collaboration with RFNC (Sarov), INFN (Pisa) and FNAL)



Yu.Budagov et. al. Superfluid He testing of titanium-stainless steel transitions fabricated by explosive welding, JINR Preprint E13-200 - 99, 2009, 12.



**THANK YOU FOR ATTENTION**