

Scientific & Technological Centre of Radiation Instruments (STC RI)

Concern "Institute for Single Crystals" (ISC)
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New Generation OF RADIATION Control Instruments Based on Scintillation Crystals.

Vladimir D. Ryzhikov
Director of STC RI

Institute for Single Crystals

"Institute for Single Crystals" (ISC) was established in 1955 in the former Soviet Union as an All Union Institute of the Ministry for Chemical Industry and employed 1600 people. Now ISC belongs to the Academy of Sciences of Ukraine and employs about 800 people.

STC RI – one of the legal entities of ISC (about 100 people)

Export Revenue - 1998	\$110,000
Total Revenue - 1998	\$700,000

Where	We	Export
<u>Country</u>		<u>Company</u>
USA		Analogic
England		Hilger Analytical
Holland		Scionix
Germany		MofTech GmbH
India		International Advanced Center for Power Metallurgy and New Materials, Hyderabad et al.

STC RI

History and activity

- 1986 – Established laboratory for oxide scintillators - 14 people, head of laboratory - V. Ryzhikov
For the first time in Ukraine – launched pilot industrial production of oxide scintillators CdWO_4 (CWO), $\text{Bi}_4\text{Ge}_3\text{O}_{12}$ (BGO)
For the first time in the world – $\text{ZnSe}(\text{Te})$ scintillators
- 1988 – Made first Gd_2SiO_5 (GSO) crystals
First dosimeter tested in damaged reactor of Chernobyl Atomic Power Station
- 1992-1993 – First in the world to produce full size (length 200 mm) PbWO_4 crystals

Positive results of testing of these crystals at CERN
Laboratory reorganized into Department (50 people)
- 1990-1996 – R&D for several types of radiation monitoring devices and instruments
For the first time in the former Soviet Union - industrial scale production of detectors for nondestructive testing of scintillator-photodiode (S-PD) type
- 1997-1998 – Together with PC “Kommunar” produced first Ukrainian X-ray customs inspection introscope for luggage
- 1998-1999 – R&D for X-ray customs inspection introscope for control of cars and trucks.

Expansion of international activities; numerous export contracts for crystals and instruments.
Preparation for industrial scale production of several devices and instruments for radiation monitoring

Goal of presentation

Description and presentation of several types of radiation instruments with a unique set of parameters

Partner search for joint production and expansion of markets

Partner search for close collaboration in international projects, including STCU, NATO, CRDF, etc.

Study of modern markets for the best way to further R&D activities

Schedule of reports

Introduction

New generation of radiation instruments based on detectors with "heavy" scintillators and "scintillator-photodiode" detectors. Their advantages and disadvantages.

Short reference about production of STC RI.

Description of devices:

emergency dosimeter

portable spectrometer

alpha-gamma radiometer

Summary

Goal of this reports and suggestions

Summary

STC RI carries out R&D and prepares for industrial scale production of radiation instruments for environmental monitoring and non-destructive testing.

Industrial scale production in collaboration with PC Kommunar, PC Monolit and final stages for certification of:

Emergency dosimeter;

Portable spectrometer based on Notebook PC;

High sensitivity alpha-gamma radiometer;

Cheap and highly efficient X-ray customs inspection introscope for luggage.

These instruments are ready to sell commercially. We are also ready to discuss prospects of joint production with interested organizations.

2. Several types of progressive devices are in final stages of R&D:

monitor-dosimeter for environmental monitoring;

beta-radiometer for measurement of ^{90}Sr

professional dosimeters of highest efficiency for contamination detection

dosimeter of solar radiation, with separate detection in A and B UV region

X-ray non-destructive testing system with high resolution.

We are currently looking for partners for short-term final R&D, joint industrial large-scale production and marketing for these products.

3. We would be happy to find partners for long-term collaboration, including creation of joint ventures.