

The following information has been extracted from the article by
 G. B. Antsar "15 Years of Activity in the Institute of Chemical Physics,
 Academy of Sciences, USSR." (Zhurnal Fizicheskoy Khimii, Vol 20, No 11,
 pp 1225 - 1229, 1946).

Introduction

There were 3 stages in the development of the Institute:-

- (a) The Laboratory of Electronic Phenomena.
- (b) The Division of Physical Chemistry.
- (c) The Institute of Chemical Physics.

(a) The Laboratory of Electronic Phenomena.

This was organized as part of the Physico-Technical Institute in 1921.

Objects: To develop electronic chemistry and apply it to chemical problems.

Head: N. N. Semenov

Members: Yu. B. Khariton, V. N. Kondrat'ev, A. I. Leypunskiy, A. I. Shal'mikov,
 A. F. Val'ter and others.

The following is a list of the chief projects at the Laboratory during
 the five years of its existence (1921 - 26):-

<u>Name</u>	<u>Project</u>
Fok	Heat theory of dielectric breakdown.
Frenkel'	Critical temperature of condensation. Co-author of book "Electronic chemistry".
Khariton	Critical temperature of condensation. Co-author of book "Electronic Chemistry".
Kondrat'yev	Dissociation of molecules into atoms by electronic bombardment. Recombination of normal and activated halogen atoms. Co-author of book "Electronic Chemistry".
Leypunskiy	Recombination of normal and activated hydrogen atoms.
Semenov	Dissociation of molecules into atoms by electronic bombardment. Heat theory of dielectric breakdown. Critical temperature of condensation. Co-author of book "Electronic Chemistry". Author of book "Electronic Phenomena".
Val'ter	Heat theory of dielectric breakdown.

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SECRET(b) The Division of Physical Chemistry.

In 1926 the Laboratory of Electronic Phenomena became the Physical Chemistry Division of the Physico-Technical Institute. In addition to continuing work on its previous projects, its scope was widened so as to include chemical kinetics. Among the new workers were A. A. Kovalskiy, M. B. Neyman, S. Z. Roginskiy, A. S. Sokolnik, A. V. Zagulin.

The following is a list of the chief projects of the Division during the five years of its existence (1926 - 31):-

<u>Name</u>	<u>Project</u>
Kharitan	Oxidation of phosphorus at low pressures.
Kondrat'yev	Transmission of various forms of energy by molecular bombardment.
Koval'skiy	Combustion of phosphorus, sulphur and carbon monoxide.
Roginskiy	Condensation of stable colloids of the alkali metals in organic solvents.
Ryabinin	Combustion of phosphorus, sulphur and carbon monoxide.
Semenov	Combustion of phosphorus, sulphur and carbon monoxide.
Shal'nikov	Combustion of phosphorus, sulphur and carbon monoxide. Condensation of stable colloids of alkali metals in organic solvents.
Shekhter, A.B.	Dissociation of molecules by bombardment with positive ions.
Trifonov	Combustion of phosphorus, sulphur and carbon monoxide.

During this period, Semenov and his fellow-workers began to keep in touch with the Institute imeni Karpov. (See Project 1950).

(c) The Institute of Chemical Physics.

In 1931 the Division of Physical Chemistry became the Institute of Chemical Physics. S. M. Kirov gave considerable assistance in the organization of the Institute. Basic character of its work remained as before, but more attention was paid to the study of combustion of gases, especially as regards internal combustion engines and explosives. A Catalysis Laboratory was also set up, headed by S. Z. Roginskiy. (This laboratory was incorporated into the Institute of Physical Chemistry, Academy of Sciences, USSR in 1942). The new personnel may be divided into three categories:-

(i) Graduates of the Physico-Mechanical Institute.

A. F. Selyaev, N. M. Emanuel', O. I. Leypunskiy, O. M. Todes,

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3.

I. L. Zel'manov.

(ii) Graduates of Outlying Higher Educational Institution. (VUZY)

A. Ya. Apin (Kasan'), N. M. Chirkov (Vozneseh), D. A. Frank-Kamenetskiy (Irkutsk), A. B. Malbandyan (Yerevan), K. I. Shchelkin (Simferopol').

(iii) Non-Graduate Students.

M. A. Ribin, Ya. E. Zel'dovich and P. Ya. Sadovnikov. (The last-named was killed during World War II).

The Institute was moved from Leningrad to Moscow in May 1943.

The following is a list of the chief projects of the Institute from 1931 to 1946:-

<u>Name</u>	<u>Project</u>
Belyaev	Theory of flame propagation in gases, explosives and powders.
Emanuel'	Labile intermediate compounds.
Frank-Kamenetskiy	Spontaneous combustion.
Khariton	Explosives.
Kondrat'yev	Labile intermediate compounds. (Stalin Prize 1943 - 44).
Mayman	Labile intermediate compounds.
Roginskiy	Catalysis (Awarded Stalin Prize, 1940). Fuel Chemistry.
Semenov	Chain reactions (Awarded Stalin Prize, 1940). Cold flames. Spontaneous combustion.
Shchelkin	Detonation of gases.
Sokolik	Detonation of gases. Knocking in internal combustion engines.
Todes	Spontaneous combustion.
Zel'dovich	Theory of flame propagation in gases, explosives and powders. Detonation of gases (Stalin Prize, 1942).

Conclusion

In June, 1945, in connection with the Jubilee of the Academy of Sciences, USSR, 22 members of the Institute received orders and medals.

In June, 1946, the Director of the Institute, Academician N. N. Semenov, received the order of the Labor Red Banner on his fiftieth birthday.

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