

The founder and head
of the Chair of Theoretical Physics
of the Yerevan State University

Levon Grigoryan

Institute of Applied Problems in Physics, Yerevan

Yerevan State University

The report is dedicated to the Centenary of Prof. G.S. Sahakyan's birth,
the Man that founded and headed the Chair of Theoretical Physics
for half a century.



Gurchen Serob Sahakyan

10.09.1913 – 26.03.2000

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1. An exceptional scientist

1.1.

In the month of September, 1913, a boy was born
in the village named “Cold Spring”,
in the family of Serob Sahakyan that named him

Gurgen.

Many years since then
in the mark of respect *in the Russian manner*
he was referred to as

Gurgen Serobovitch=G.S.

1.2.

At first he studied in the Secondary school and then he attended a Technical Training School to be **a builder**.

1.3.

The youth of Gurgen was unusual.

He served in the forces in the field

during 7 years.

First he had been in action during the **Finnish War** (1939 –1941),
then in action all through

the World War II

Belarus – Polish – Hungary - Austria

(1941 – 1945)

1.4.

26 марта 1943г.

Каждой энергии соответствует ~~энергия~~ инертность $m = \frac{E}{c^2}$.
 масса всех неблещих тел есть инертность гравитационной
 энергии этих тел. Эл. маг. энергии тоже соответствует
 инертность, которая в отличие от гравит. инертности,
 которая в основном сосредоточена в малом объеме
 (по сравнению с полем), ~~инертность~~ распределена
 размазанно в поле. Плотность эл. маг. массы
 д. дугуб: $d = \frac{H^2 + E^2}{8\pi c^2}$
 Общая инертность поля дугуб. $m = \frac{1}{c^2} \int \frac{1}{8\pi} (E^2 + H^2) dV$
 Если имеем однородное гравитационное и эл. маг.
 поле то ур-ние лавис дугуб: $\text{div } G = H \cdot K \left(d_g + \frac{H^2 + E^2}{8\pi c^2} \right)$
 где G - напряженность грав. поля,
 K - грав. постоянная
 т.е. должно существовать связь между G , H , и E .
 $f(G, H, E) = 0$
 Явление инертности - предельно малое к изменению
 к его световым движением как раз вызвано тем, что
 масса тела находится в поле.
 Скоро думаю световой наш батус, Приселки
 Плотинин (из Парижа) и затомителъ документа.
 1-й дугуб 1943г.

Шурыба 24-го дугуб 1943г. Шурыба дугуб 1943г. Шурыба
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A synopsis on the **Special Theory of relativity** made by Sahakyan G.S. on the front. The date of record was

March 26, 1943

After 50 days the following document was given to him:

Народный Комиссариат
Обороны Союза ССР

29 - й
ОТДЕЛЬНЫЙ ПОЛК
С В Я З И

16. мая 1943 г.

№ 159

Временное удостоверение личности

Предъявитель сего М. И. Михай

Саакян

Гурген Серобович

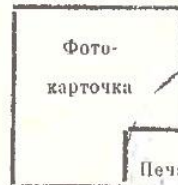
состоит на службе в КРАСНОЙ АРМИИ в 29^м

Отдельном Полку Связи

(наименование части)

В должности Механик боеприпасов связи в/полка

Действительно по 31 Августа 1943 г.



Подпись владельца удостоверения К

Климаев

Командир части 29 отс
Войкович
Заместитель Штаба
Майор У. В. Востриков

The entry on this document witnesses that **Sublieutenant Sahakyan G.S.** is a service technician of a quick-response equipment. The document was issued on

May 16, 1943.

The unit commander once could not contain himself any longer
And told him with irritation:-

“Deuce take it !

We are here to fight.

And every day some of us die,
but you are unable to tear yourself away from your physics.

Can't you die without this physics?”

Such was G.S. at the battle-front
and generally everywhere and always.

1.5.

Gurgen was an unusual post-graduate student.

He was enlisted to the post-graduate courses (in 1946)

when he was 33 years old.



G.S. at the end of forties of the past century.

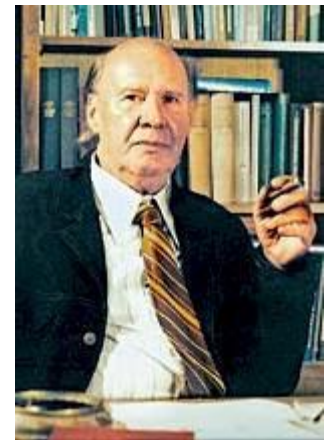
The boy born in an Armenian village became a post-graduate student of
P.N. Lebedev Physical Institute
of USSR Academy of Science
in Moscow.

The co-supervisors of his post-graduate studies
have been the famous physicists

D.I. Blokhintsev

and

I.E. Tamm



announced later on
a Nobel Prize Winner.

1.6.

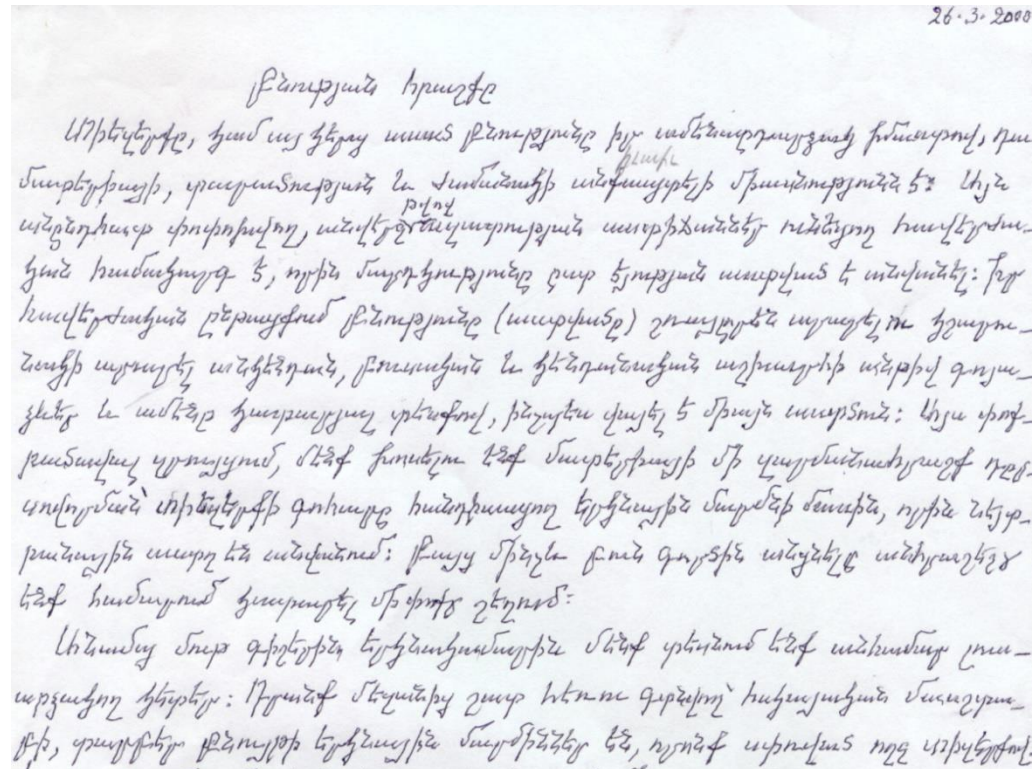
G.S. was an exceptional scientist.

This is a fragment of his records on the theory of neutron stars

dated from March 26, 2000.

It is unusual for 2 reasons.

A fragment of incomplete synopsis dated from March 26, 2000.



26.3.2000

Թնայան հրապարակ

Արեւելեցիք, իմաց հեղաց ասան թնայանը իր անհնարապաշտ իմաստով, որս
 Եւրոպայի, քաղաքացիական և համաշխարհային պատերազմների ժամանակահատվածում է: Այն
 անընդհատ փոփոխող, անվերջ ժամանակակից աստիճանների անհատի կապիտալիզմի
 հան համաշխարհ է, որին Եւրոպայանը ըստ էության աստիճան է անվանել: Իր
 կապիտալիզմի ընթացքում թնայանը (աստիճան) շարունակաբար ապրելու էր իր
 նախնի ապրելու անհեղինակ, բնական և ինտելեկտուալ աշխարհի անփոփոխ գոյա-
 չեան և անհար հարաբերակարգով, ինչպես վաղ է թնայն աստիճան: Այս փոփ-
 րակումը պայմանավորված էր հիմնականում Եւրոպայի մի կապիտալիզմի զարգ-
 անումով և Եւրոպայի գոյության համապատասխան երկարաժամկետ ընթացքով, որին ներա-
 լանում էր աստիճանի անվանում: Թնայն թնայն իմացի անհատի անհատի ընթացք
 էր համարում իր փոփոխ ընթացք:

Անհատը ըստ գրեթե բոլոր երկրամասերի ընթացքով անհատը լու-
 արապետի հերթի: Իրանի ընթացքը ըստ հեռու գրեթե ինչպիսիան ընթացք-
 քով, քաղաքացիական պատերազմի երկարաժամկետ ընթացք էր, որնից պարզանք ողջ անհատի:

First, on those days
G.S. was 87 years old.

And second, on that day the Death
 unexpectedly intervened in his affairs and interrupted the statement of a research.
 Please, take notice of the date of entries – **March 26**, 2000.
On that day G.S. died.

We see that

**G.S. was faithful to science
 literally up to the end of his life.**

2. An extraordinary Leader

2.1.

G.S. founded the Chair of Theoretical Physics of YSU in 1951
and has headed that during 35 years.

In 1986 he resigned the guidance of Chair to his follower Prof. E.B.Chubaryan.

Prof. E.B.Chubaryan,-
Head of CTP YSU,
Academician of NAS RA,
The 1st co-chairman of our conference.



After that G.S.



1913 – 2000

was the status leader of CTP for long 14 years yet

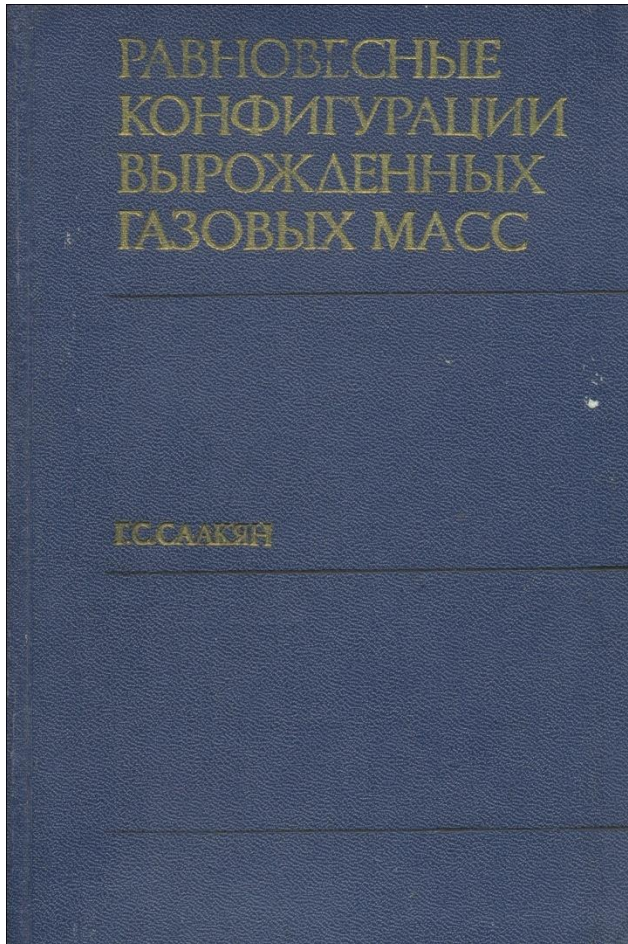
and has been

the principal scientific associate of CTP
up to the end of his life.

2.2.

This monograph has been issued in Moscow, when

G.S. was 59 years old.



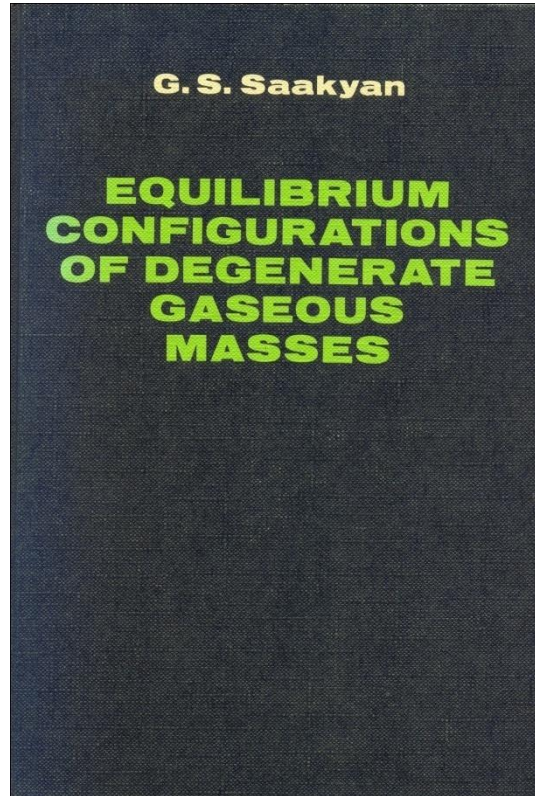
Equilibrium configurations
of degenerate gaseous masses

G.S. Sahakyan

Moscow, 1972

It made him world-famous among the scientists involved in research activities in the field of neutron star physics.

It was translated into English and was issued abroad **in 2 years period,**
that was very short in those days.



The English edition of the
monograph by G.S.
published by
A Halsted Press Book
in 1974.

In this monograph **a systematic statement of the theory of superdense celestial bodies is given for the first time.** **It is still widely used** by physicists engaged in the research of neutron stars and white dwarfs even at present – **after 40 years since its publication.** The monograph brought the author a world-wide repute.

2.3

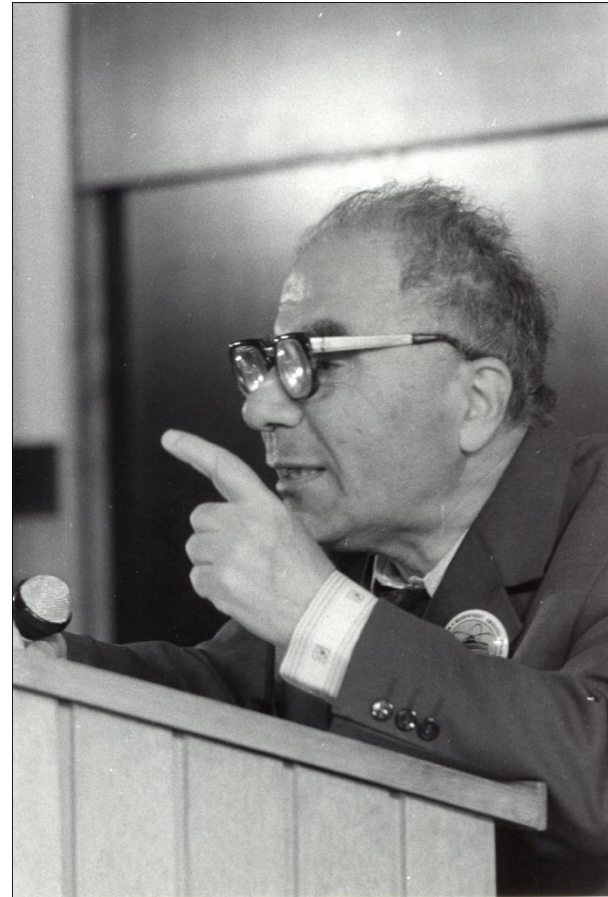
G.S. achieved wondrous collaboration with

a distinguished astrophysicist of the XX-th century,-
Prof. V.A. Ambartsumyan,

Academician of the Academy of Sciences of USSR.

The founder and Director of
the Byurakan Astrophysical Observatory

The President
of the Academy of Sciences of Arm. SSR



The collaboration was unusual for 3 reasons:

1. The collaboration continued for **a quarter of century**;
2. In 1960 -1970 period
**several fundamental research papers
have been jointly published
by V.A. and G.S.**
3. Though **after 1970** there were no joint publications,
the collaboration stayed active and fruitful.

In particular, **this collaboration**:

- 1) **made for** the publication of the mentioned monograph by G.S.,
that was known to world-wide scientific community;

2) **made for** the organization and conduction in Armenia

- of two All-Union Conference on the theory of gravitation and GR
in 1972 and 1988,
- of All-Union Symposium on the theory of superdense celestial bodies
in 1980.

G.S. supervised the works
of these conferences and symposium.

Owing to the collaboration between V.A. and G.S.

3) the CTP headed by G.S. became
the leading institute in the USSR
on the theory of superdense celestial bodies.

2.4.

G.S. was an extraordinary leader

- He supported and encouraged the gifted (hard-working and giving promise) scientific associates;
- His opinion was always attentively considered, given credence and trusted.

But how he achieved that?

How he achieved that?

1. Maybe because he was extremely obsessed with the science and endlessly devoted to that?
2. Maybe because he worked almost 15 hours a day?
3. Probably because he was always ready to share his ideas and apprehend the ideas of his colleagues.

G.S. was capable of initiating an enthusiasm in associates and that brought its fruits.

3. The followers of G.S.

G.S. was the research **supervisor or the adviser** of a large number (several tens) of Candidate and Doctor Theses of scientists from different countries

(e.g., **Ukraine, the Czech Republic**)

The first followers of G.S. (formally or essentially)
were his associates in the Chair.

In future they proved to be

**known scientists
in the science community of Armenia:**



Prof. Edward B. Chubaryan

Head of the Chair of Theoretical Physics
of the Yerevan State University,
Academician of NAS RA,
The 1st co-chairman of our conference.



Prof. David M. Sedrakian

Head of the Chair of YSU:

Academician Victor Ambartsumyan's Chair of General Physics and Astrophysics

Academician of NAS RA

Vice-President of the Academy of Sciences of Armenian SSR

Editor of the journal "Astrofizika"



Prof. Yuri L. Vardanyan

Dean of the Faculty of Radiophysics of YSU

Corresponding Member of NAS RA



Prof. Roland M. Avagyan

Dean of the Faculty of Physics of YSU

Corresponding Member of NAS RA



Professor Vladimir VI. Papoyan, YSU

17.10.1937- 06.05.2004



Professor Gohar G. Arutyunyan, YSU



Associate Prof. Ashot V. Hovsepyan, YSU

The last follower of G.S.



Prof. Aram A. Saharyan, YSU

Regular Associate, **Abdus Salam Intern. Centre
for Theoretical Physics**, Trieste, Italy

4. The students of G.S.

4.1.

G.S. has guided CTP during 35 years (from 1951 to 1986).

In that period

more than 3000 students

graduated from the Faculty of Physics of YSU,

including

several hundred theoretical physicists.

These graduates made weighty contribution to the development of physics in general and especially of theoretical physics in Armenia.

Nowadays they successfully work **not only in Armenia, but also abroad.**

Russia
England
Germany

USA
Israel
Italy

Greece
Guinea
and other countries.

4.2.

In the period

from the late sixties to the middle of seventies of the XX-th Century
(1969-1976)

some **students from the German Democratic Republic**
have been taught at the Chair headed by G.S.
(three turn-outs).



The students graduated from CTP in 1974,
both **the Armenians and Germans**,
together with their tutors.

Now let me introduce two graduates from CTP.



Roland Kirshner

At present he is a well-known in Germany theoretician
in the field of elementary particle physics.



Stephan Gottoeber

At present he successfully works
in the Institute of Astrophysics in Potsdam (Germany)

5. The authority of G.S.

5.1.

G.S. Sahakyan has been:

the status leader of CTP for almost half a century (1951-2000)

the Dean of the Faculty of Physics of YSU (1967-1972).

He supervised the works

- of two All-Union Conferences on the theory of gravitation and GR
(1972, 1988)
- of All-Union Symposium on the theory of superdense celestial bodies
(1980)

The CTP headed by G.S.

became the leading institute in the USSR

on the theory of superdense celestial bodies.

5.2.

The activities of G.S. in the following different fields of physics
have been invariably fruitful:

1. Elementary Particle Physics

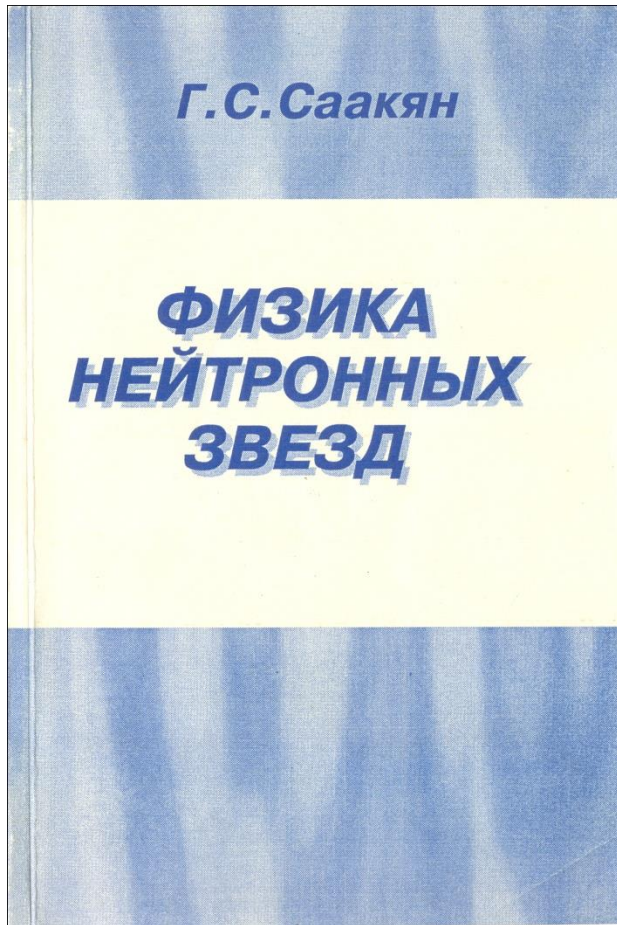
2. Physics of neutron stars

Degenerate superdense stellar matter
Superdense celestial bodies
Radio emission of pulsars
Bursts
Neutron stars in galactic nuclei

3. Relativistic gravity

Scalar-tensor theory of gravitation

G.S. is the author of **4** monographs and collected papers.



G.S. Sahakyan

Physics of neutron stars

Dubna, Russia

1995

Yerevan, Armenia

1998

Second enlarged and revised edition

He is the author of **nearly 150** scientific papers.

G.S. is the author of **2** textbooks.



Quantum-Mechanics

G.S. Sahakyan, E.V. Chubarayn
Yerevan, 1972, 1982, 2009



Space-time and gravitation

G.S. Sahakyan
Yerevan, 1985

5.3.

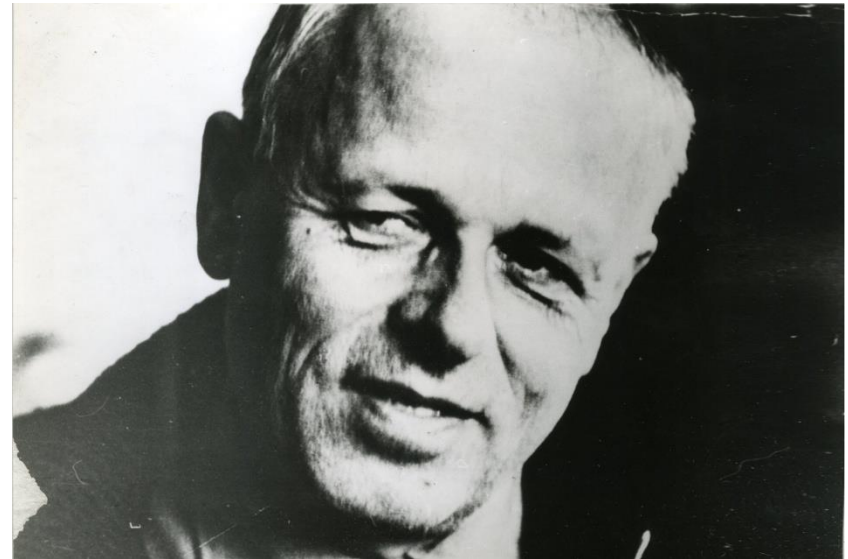
G.S. was

the only researcher from the Chair of Theoretical Physics

A) That lived in one room with

A.D. Sakharov

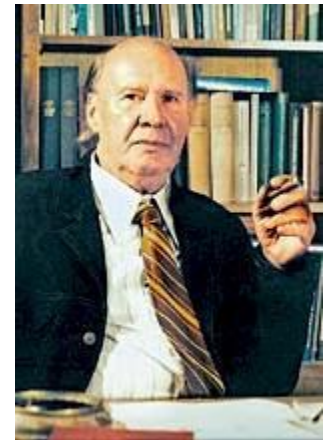
the world-famous
scientist
and human rights activist



G.S. was

the only researcher from the Chair of Theoretical Physics

B) The research supervisors of which were world-known scientists



G.S. was

the only researcher from the Chair of Theoretical Physics

C) That fought during 7 years.

D) G.S. was older than any of his associates in CTP
minimum by 20 years.



All associates remember G.S. Sahakyan just as it is seen in this photograph.



In this photograph G.S. is seen in his study room. The free table in the room and a chair beside it were for the associates.

During almost 50 years this seat was considered to be the most popular and important place at CTP for all the post-graduate students, all future candidates and Doctors of Sciences

that have been numerous times

and spent many years at this desk

for hours of joint research efforts.



But that is not yet the half of it.

However early was an associate at this place,
G.S. was already working at his desk waiting for him.

However late did the associate leave the room,
G.S would (most likely to) **stay and continue to work.**

Afterword

There was some inscrutability natural to G.S. and he always commanded an esteem to his personality.

It is maybe due to these features that
his authority was indisputable for all the CTP associates,
but maybe because G.S. treated his colleagues,
or to be more exact his young colleagues,
as his relatives.

He usually addressed the colleagues

(the students, post-graduates, young scientists and sometimes not only
the young ones)

with famous “My deary”.

In my opinion the following 5 words

Only the Science and only My Deary

The footnote name of my report

correctly characterize the personality of

Prof. G.S. Sahakyan.



G.S. students and colleagues
follow his example.



Thank you indeed for your attention

Levon Grigoryan

levonshg@mail.ru