The Rolex Awards for Enterprise

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THE ROLEX AWARDS FOR ENTERPRISE 1993

OFFICIAL APPLICATION FORM

SECTION 1

Applicant's family name: Schulz Poquet

Applicant's first (given) name(s): Juan Joaquín

Applicant's title: Industrial Engineer

Mr. ☒ Mrs. ☐ Miss ☐ Ms. ☐

Address: Juan J. Schulz Poquet

Street: Defensa 1532

Town: HAEDO - Bs. Aires Postal code: 1706

Country: ARGENTINA Cable address: Telex No.:

Tel. No. (day): 0054-1-659.9728 (night): idem Telefax No.:

Short title of project (not more than two lines):

A modern test for the ether: A tardy homage to Albert Michelson a century after his famous experiment.

Have you applied for a **Rolex Award for Enterprise** on a previous occasion? Yes ☒ No ☐ (1)

Declaration:

I declare that, to the best of my knowledge and belief, all the statements made and particulars given with regard to this application are true, and I accept that this Official Application Form and Declaration constitute the basis of an agreement between myself and Montres Rolex S.A. under the **Rules and Conditions** for **The Rolex Awards for Enterprise 1993**, copy of which I have received together with this Official Application Form. I hereby certify that I am the sole and true author of, or in the case of a group application, the chosen representative for, the project submitted herewith and that, to the best of my knowledge, no third party rights are infringed.

Signature of applicant (by hand):

Date (day, month, year): 29 JANUARY 1992

(1): Under the pseudonym of "Hans Haridas", in 1981.

OFFICIAL APPLICATION FORM (continued)

SECTION 2
PERSONAL DETAILS

A. Family name; first (given) name(s): SCHULZ POQUET; Juan Joaquín
B. Date of birth (day, month, year): 4 APRIL 1939
C. Nationality: Spanish
(In the case of dual nationality, please indicate the nationality under which you prefer your name to be registered)
D. Present occupation. Job description and position (if applicable):

President of AGARBATTI S.A., a manufacturing enterprise of incense sticks.

OFFICIAL APPLICATION FORM (continued)

SECTION 2 (continued)

E. Education and qualifications including institutions attended, and dates of attendance where applicable:

Bachellor (High School), Colegio Nacional
Mariano Acosta
Buenos Aires, 1956

Industrial Engineer, Universidad Nacional de Bs. Aires
Buenos Aires, 1969

Executive of several areas in the Supply Department of
General Motors Argentina S.A.
Buenos Aires 1969 - 1975

Chief of Purchasing of Hiram Walker S.A.
Buenos Aires 1975 - 1979

Independent Manufacturer of incense sticks
Buenos Aires 1979 - 1983

President of Agarbatti S.A., Bs.As. 1983 up today.

OFFICIAL APPLICATION FORM (continued)

SECTION 3

PROJECT DESCRIPTION

A. Brief Project Description

Give a brief description (not more than 12 lines) of your project in the space below:

In the last decade the interest in carrying out experiments in order to evidence the existence of ether has risen again. This interest is justified not only because of the exciting idea of a measurable absolute but also because of its direct and conflicting incidence in the main postulate of Theory of Relativity. The submitted project consists of an original and very feasible experiment using a compact device with a Laser-ray source, mirrors and a fluorescent screen. In the case of a positive result, besides its overwhelming consequence in Science, this device would become a marvelous instrument for all kind of navigation purposes.

B. Project Category

(a)Your project may come under any of the categories listed below:

- **Applied Sciences and Invention**
- **Exploration and Discovery**
- **The Environment**

(b)Under normal circumstances, applications and all accompanying documents and materials will **not** be returned to candidates and, an appropriate time after they have been reviewed by the 1993 Selection Committee, all items will be destroyed. If, however, due to exceptional circumstances you have had to submit an original of an irreplaceable document, please specify it below and indicate the address to which this specific document should be returned.

Items to be returned : .....

Return address : .....

SECTION 3 (continued)

C. Detailed Project Description

Describe in detail your proposed or ongoing project specifying clearly any special techniques you are currently employing or might wish to employ. Your description should be as full and as detailed as possible since the 1993 Selection Committee, will, wherever feasible, judge entries solely on the information provided in and with this application.

Nevertheless, the 1993 Selection Committee is at liberty, should it so decide, to request additional information about a given project if, in its judgment, such information will help in the final selection of the **Rolex Laureates**.

INTRODUCTION: In the last decade the interest in carrying out experiments in order to evidence the possible existence of ether has risen again. (See items 2 and 3 in the Detailed List of Enclosures). The author of item 2 says in his letter to PHYSICS TODAY Magazine that it would be convenient to make another experiment in order to test once again the existence of ether. This convenience is stated in homage to Albert Michelson's anxiety as regards this subject and it is stated as a way of celebrating the centennial of his famous experiment (1887-1987). The project I'm submitting is my modest tribute, it is my small contribution in this proposed homage to a great genius such as Albert Michelson, whom I admire very much.

The above mentioned interest is widely justified as much for the exciting idea of a measurable absolute as for its direct and conflicting incidence in the main postulate of the Theory of Relativity, i. e. the one referred to the constant velocity of the light propagation. (We must remember that the null result of the mentioned Michelson-Morley's experiment was one of the basis for the development of Einstein's famous theory).

From the enclosured letters we can see that the appointed null result is now being interpreted as a possible consequence of a kind of resonance of light waves forced by the apparatus used in that ocassion. Consequently the debate of the ether's existence has been opened again.

In order to avoid this resonance, some devices with laser rays have been used showing preliminarly an anisotropy in the light displacement, i.e. a positive result (see enclosure 3).

SECTION 3 (continued)

Detailed Project Description (continued)

Here I'm presenting the idea of another experiment, also with a Laser-ray source, but on the basis of a different principle (different from Michelson-Morley's principle and different from the one stated in encl. 2 and 3). In the case of being carried out, my proposed experiment would throw much light (laser light, of course) into this issue.

The overwhelming consequences that a positive result would mean to Science are obvious. On the other hand, a null result would give a relevant conclusion to the debate of the ether.

And there is another consequence in the case of a positive result. As it will be seen in the detailed description, the device to be used in the experiment would serve as a noticeable and very efficient instrument of sea, air and outer space navigation, since it would show without any external reference, the vessel position over the Earth's surface and its course. Likewise, in the outer space navigation, this instrument would indicate the direction and absolute speed of the craft movement.

THE EXPERIMENT: Using a Laser-ray apparatus, a beam is directed from North to South (see figures 1 and 2 on the sheet enclosure). The Earth turns Eastwards in its daily rotation and so it does (on the side opposing the sun) during its annual revolution around the sun. Briefly, let us suppose the light speed is **c = 300,000 km/sec**, and that the Earth moves at a speed of **v = 30 km/sec**. Let us neglect the tangential speed resulting from the daily rotation around its axis.

Now, let us suppose that ether exists. If we perform the experiment at midnight, the Earth's surface, at a given point P, moves 30km/300,000, i.e. 100 mm towards the East -to point P'- per each kilometer that the ray moves towards the South. Since we suppose that the ray is a disturbance of the ether and that the ether is at rest, the ray will have been shifted the same distance towards West. Consequently, if we place a screen at 1 km, the ray impact P will be at 10 cm to the West from the theoretical point P' (the one arising if the Earth were unmoved or if the ether did not exist). And how will we be able to know the position of this theoretical point? It doesn't matter, because the Earth turns and, together with it, so does the screen against which the laser beam "strikes". Therefore, after 12 hours, at noon, the screen will be turned 180° and the impact will now be at 10 cm towards the East from that theoretical point, to return to its initial position at next midnight. If this experiment were performed at the equator, the impact would describe a circle (radius 10 cm) around the theoretical point on the screen every 24 hours (neglecting the deformation caused by the Earth's axis inclination). And the circle would flatten as we moved with our equipment towards the poles, until it would resemble a straight line of 20 cm length in their neighborhood.

If ether existed, we would thus have an evidence of its existence, and, what is more exciting and attractive, an accurate record of the rotation and orbital movement of the Earth, i.e. a combination of Foucault's Pendulum

SECTION 3 (continued)

Detailed Project Description (continued)

Experiment and the Aberration Phenomenon observed and explained by Bradley.

The foregoing would occur because we have created a system fixed to the Earth, composed of laser equipment and a recording screen, and because we let this system turn within the "ether wind" (Michelson's dream) produced by the orbital movement. However, in order to refine the experiment, we must carry it out in the highest possible vacuum to prevent the influence coming from the partial drag of air, or from its light wave re-emission.

Nevertheless, this will not cause major difficulties since our system can be fully compacted by means of multiple reflections. These reflections don't affect the impact shift because, in the orientation of its maximum elongation, the surfaces of mirrors are parallel to the current of ether (see fig. 3) so that they cannot compress the interface beams as it could happen with certain portion of the light run in Michelson-Morley's experiment. (See enclosure 2). Note that if for 1 km distance we had a maximum impact spread of 20 cm, in the case of 100 m we will still have a very good 2 cm long one. With 100 reflections, we would be able to operate in closed area of only 1 m length. Having such a compact system, we would also be able to turn it, joining it by proper pivots, and thus we wouldn't have to wait for the 24-hour-Earth's rotation period.

If ether were a reality, with this basic device plus adequate accessories (accessories) we would have, additionally, a marvelous instrument for navigation purposes, i.e. navigation by sea, air and throughout space. It is easy to realize that, in the first two cases, we will be able to know the craft orientation and position (the position with the assistance of a clock), and, in the last case, to know the orientation and velocity corresponding to the absolute movement of the craft. All of this since the radius of the circle in the screen is directly proportional to the ether's current velocity, and its flatness, to the apparatus axis inclination in respect to this current.

WHAT THE EXPERIMENT CAN YIELD: The preceding paragraphs describe a very simple and direct way to detect the possible existence of ether. It is so simple and sensitive that it makes one think of a negative result. Otherwise, how could the laser-ray be successfully used to align certain constructions? At different times of the day, the ray would show a different run. If not, how could the ray be used as the sight of sophisticated weapons? The bullet, as a perfect example of emission phenomenon (since its speed in respect to the target is the sum of the bullet's speed in respect to the gun plus the gun's speed in respect to the target) would have a trajectory other than the one marked by the laser, and, in accordance with its orientation, a different error would be given hampering its systematic correction. Nevertheless, in these examples the laser-rays are not shot in vacuum and air might upset the theoretical results as it drags light in its movement together with the Earth (**partially**, to an insignificant extent, according to Fresnel's Formula, but **totally**, according to the Extinction Theorem. See encl. 4 and 5).

SECTION 3 (continued)

Detailed Project Description (continued)

As I said in the introductory paragraphs, a **positive** result would oblige the scientific world to make a deep revision over the concepts contained in the Einstein's Theory of Relativity since it was born practically from the null result of Michelson-Morley's experiment.

Also, different results according to the medium in which the experiment is performed -air, vacuum, water, etc.- would confirm or reject the Fresnel's Formula, Extinction Theorem, etc. in a quantitative manner.

Finally, with a positive result we would enjoy a relevant instrument of navigation, for which I applied for a Patent of Invention two years ago to the National Direction of Intellectual Propriety (Dirección Nacional de la Propiedad Intelectual) of Argentina, under the Certificate Number 313,031.

And how to deal with another **null** result? Obviously, the existence of ether as an absolute medium for luminous disturbance would not have, once more, an experimental support, so we should accept it as coming from the validity of Theory of Relativity or think of other ways to prove a possible aspect of **emission** for light propagation.

As I had never accepted the T.R. postulates I began to search for the last way. In fact, before reading Dr. H. Aspden's letter (encl. 2) I considered the null result of M-M's experiment as fully convincing in that sense, i.e. as a consequence of the appointed "emissive" character of light, and, as I became fond of this issue, I designed and re-designed, improving critical aspects, a series of experiments under very different conditions but in such a way that they could avoid the light re-emission's problem (this problem involved and discredited most of the experiments carried out for the same purpose -see the conclusions of encl. 4 and 5). But this is another chapter of the issue, because these experiments only would make sense if it were precisely proved that ether does not exist.

I have never carried out any experiment due to my condition of amateur and my daily scope of business. But I'm convinced that in case of being awarded a prize at this contest I would call the attention of appropriate institutions so that it could be possible to perform the submitted project and even the mentioned series, if necessary, according to the concepts of the preceding paragraph. (See enclosure 6 referred to my former application to the 1981 ROLEX AWARDS under the pseudonym of "Hans Haridas". The above mentioned series includes some of the experiments submitted on that occasion -substantially improved- and others).

OFFICIAL APPLICATION FORM (continued)

SECTION 3 (continued)

D. Detailed List of Enclosures

Be sure to list **all** enclosures accompanying your application.

1.- One sheet with figures referred to the project.

2.- Copy of the letter of Mr. H. Aspden, entitled "A Modern Test for the Ether?", published by PHYSICS TODAY in March, 1988 (pages 132 and 134). (2 sheets).

3.- Copy of the letter of Mr. E.W. Silvertooth, entitled "Special Relativity", published by NATURE in its vol. 322, on 14 August 1986. (1 sheet).

4.- Copy of the article of Mr. J.G. Fox, entitled "Evidence Against Emission Theories", published by AMERICAN JOURNAL OF PHYSICS in January, 1965 (Volume 33, Number 1). (17 sheets).

5.- Copy of the article "Experimental Evidence for the Second Postulate of Special Relativity". J.G.Fox. Am. J. of Physics 30, p. 297/300-1962. (4sheets).

6.- Copy of the letter of Dr. Mario Garavaglia to The Secretariat of THE ROLEX AWARDS FOR ENTERPRISE 1981, on 29 April 1980, informing his position as regards of the author of the present project on that occasion. (1 sheet).

OFFICIAL APPLICATION FORM (continued)

SECTION 4

SPECIFIC PROJECT CHARACTERISTICS

A. Project Duration

Expected duration of project (start date and estimated date of completion). The dates you give may be approximate and will not be considered as final or binding.

In case of being laureated I would destine the corresponding prize to the construction of the necessary devices for the experiment, so the demanded time of that construction is mainly the project duration, and I estimated it in approximately 6 months. Due to the estimated date for the grant (30 April 1993), I estimate the project would be completed between June and December of 1993.

B. References

Names, addresses, telephone, telex and telefax numbers and cable addresses, and brief identification of at least three persons able to act as references for your project and willing to provide information to the Secretariat, if necessary. These persons may be called upon by the Secretariat when your application is being reviewed. The 1993 Selection Committee reserves the right to call upon references, use its own sources of information or call upon the assistance of external advisers in the evaluation of your application.

Should you be either unable or unwilling to nominate references for your project, please indicate the names, addresses, telephone, telex and telefax numbers, cable addresses, and a brief identification of persons acquainted with your technical background and work.

(1)

- Mr. Otto Schneider

Philosophical Doctor (University of Berlin); Research Fellow of the National Research Council of Argentina (CNI); Ex-Professor of Geophysics (Universidad Nacional de Buenos Aires - UBA); Ex-Professor of Geomagnetism and Atmospheric Electricity (Universidad Nacional de La Plata - ULP); Member of: Sociedad Científica Argentina; American Geophysical Union; German Society for Polar Research; Asociación Argentina de Geofísicos y Geodestas; International Association of Geomagnetism and Aeronomy; etc. Biographical Reference: "World Who's Who in Science" 1st Edition, 1968 p. 1498.

Home Address: Echeverría [redacted]
1428 BUENOS AIRES - Argentina - Phone: 0054-1-78[redacted]

Work Address: FACULTAD DE CIENCIAS EXACTAS Y NATURALES - U.B.A.
Departamento de Ciencias Geológicas
Ciudad Universitaria Nuñez
1428 BUENOS AIRES - Argentina - Phone: 0054-1-781-50[redacted] int [redacted]

(1): Please be understood that the inclussion of the following people as references doesn't mean any agreement on their part with my scientific concepts.

OFFICIAL APPLICATION FORM (continued)

SECTION 4 (continued)

References (continued)

- Mr. Mario Garavaglia

  Physical Doctor (Universidad Nacional de La Plata - ULP); Director of the Optical Research Center (Centro de Investigaciones Opticas - CIOP); Professor of Physics (ULP): Member of the National Research Council (CNI); etc.

  Home Address: Calle 4 N° [redacted]
  1900 LA PLATA - Bs. As. - Argentina - Ph.: 0054-21-[redacted]

  Work Address: CENTRO DE INVESTIGACIONES OPTICAS (CIOP)
  Camino Parque Centenario entre 505 y 508
  1900 GONNET - La Plata - Bs. As. - Argentina
  Ph.: 0054-21-84[redacted] Fax: 54-21-53[redacted] Tx.: [redacted]

C. Literature

Please identify, give bibliographical references for or describe any books, papers, articles, photographs, films or any other materials published, or in your possession which may assist in the evaluation of your project but which you have **not** enclosed with this application.

There is a great deal of publications connected with the issues mentioned in this project. That's why it is practically impossible to provide an exhaustive list of bibliography. Besides, as an amateur scholar of Science, I am not in touch with the published present scientific works and I have no knowledge of the latest achievements. Nevertheless, the authors of the enclosures -which inspired me to work on the submitted subject- have quoted in them abundant bibliography.

Enclosure 1

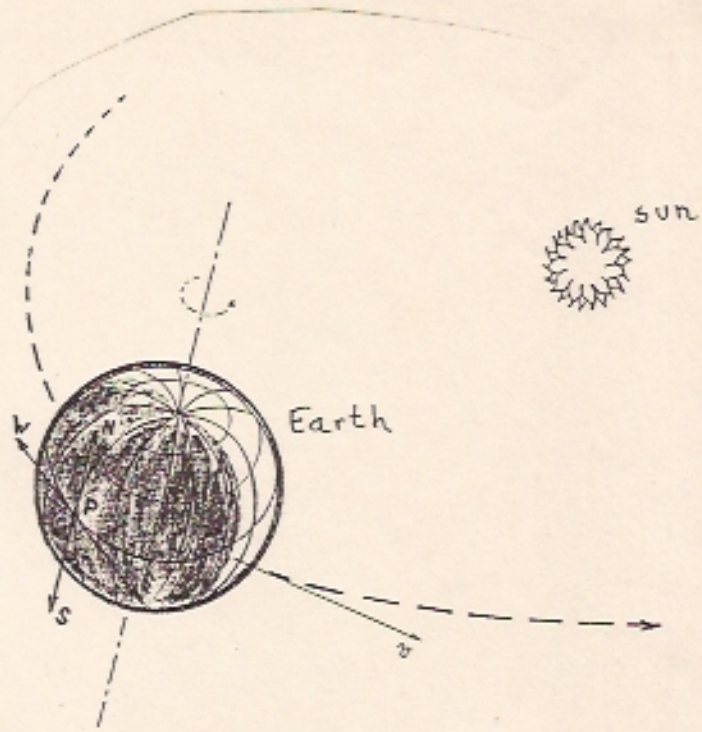

figure 1

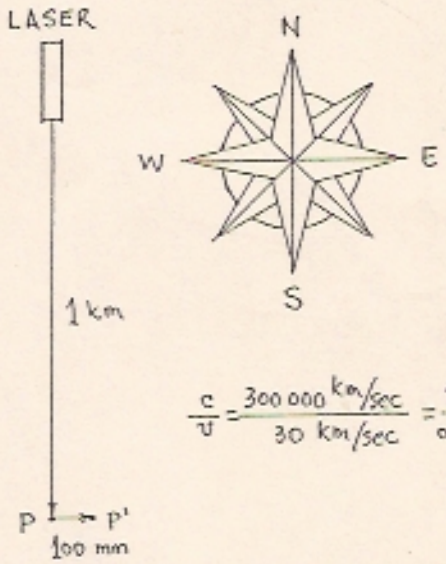

figure 2

$$\frac{c}{v} = \frac{300\,000\ \text{km/sec}}{30\ \text{km/sec}} = \frac{1\ \text{km}}{0.0001\ \text{km}} = \frac{1\ \text{km}}{100\ \text{mm}}$$

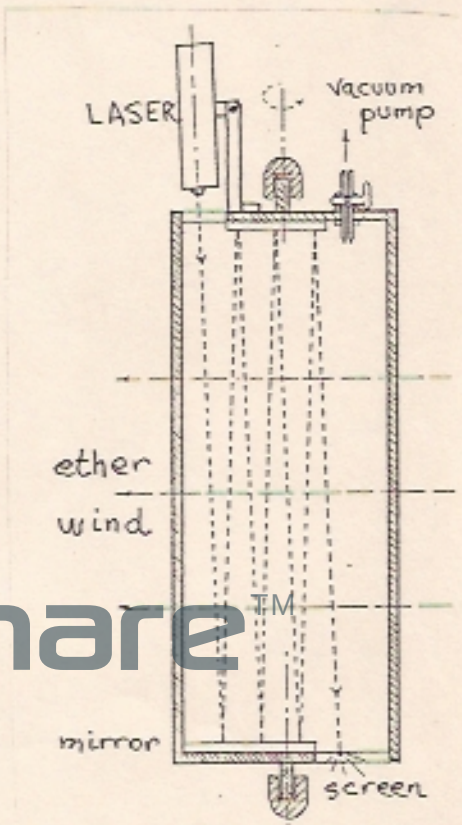

figure 3