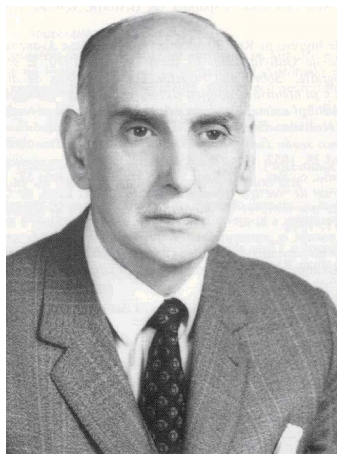


## A BRIEF PORTRAIT OF THE LIFE AND WORK OF PROFESSOR ENRIQUE VIDAL ABASCAL

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The “VIIIth International Colloquium on Differential Geometry (E. Vidal Abascal Centennial Congress)” held in Santiago de Compostela (Spain), 7-11 July 2008, has been a part of the celebration of the one hundredth anniversary of the birth of Prof. Enrique Vidal Abascal. In what follows you will find a brief summary of his life and work; if you are interested in knowing more about this Spanish mathematician, you can find more details about him at the webpage



ENRIQUE VIDAL ABASCAL

<http://xtsunxet.usc.es/icdg2008/evidala.htm>.

### Some Biographical Data

Enrique Vidal Abascal was born in Oviedo (Spain) in October 12, 1908, and died in Santiago de Compostela (Spain) in October 31, 1994.

Graduated in Mathematics at the Complutense University of Madrid in 1931, Vidal became immediately involved in the teaching of mathematics at the college level from 1932 until 1955, although his work at the university started in 1941 at the University of Santiago, sharing his position at a college in Santiago with a nomination as Assistant Professor at the university. In 1955 he was nominated full professor to occupy a chair on Differential

Geometry at the University of Santiago, staying in this position until his academic retirement in 1978.

In 1944 he obtained the Title of Doctor in Exact Sciences by the Complutense University of Madrid; his doctoral thesis was written under the guidance of Ramón María Aller Ulloa, being his advisor Esteban Terradas (Complutense University), and it was devoted to the geometric study of the calculation of the orbits of double stars.

During his academic life at the university he has been engaged at the following positions: Vice Dean of the Faculty of Sciences of the University of Santiago during the periods 1960-61, 1966-69 and 1976-78; Dean of the Faculty of Mathematics of the same University from January to October of 1978, date of his retirement; Vice President of the Royal Spanish Mathematical Society in the periods 1963-66 and 1973-78; Head of the Mathematical Section of the Astronomical Observatory of the University of Santiago, associated to the “Consejo Superior de Investigaciones Científicas” (Spain), from 1942; and Director of the Seminary of Mathematics of the University of Santiago, center co-ordinated with the Institute “Jorge Juan” of the “Consejo Superior de Investigaciones Científicas”, between 1967 and 1978.

Vidal was also Member of the Royal Academy of Galicia from 1971, and the creation of the Royal Academy of Sciences of Galicia, in 1978, is owed to his personal initiative and management. He was the first President of this Academy between 1978 and 1982, when he resigned and then being nominated as Honorary President of the Academy. Member of the “American Mathematical Society”, the “Círcolo Matemático di Palermo” and the “Royal Spanish Mathematical Society”, he was also reviewer of “Mathematical Reviews” and of “Zentralblatt für Mathematik”.

In 1952 he was granted for one stay at the “Bureau International d’Education” in Geneva (Switzerland), for visiting training centers in Switzerland in order to know the problematic of the teaching of Mathematics at the secondary level in that country; in 1953 he traveled again to Switzerland, staying for three months in Lausanne working with Georges de Rham on the foundations of Integral Geometry, and being invited to give a conference in the Polytechnical School of this city.

In 1963, 1966, 1973 and 1977 he was invited to pronounce conferences and to lecture courses on the subjects of his research at the University of Paris VI and at the “College de France”. Also, he was invited to participate in numerous seminaries and scientific meetings at the Universities of Paris and Strasbourg, and in the research centers of Oberwolfach and Brussels. He also participated in the International Congresses of Mathematicians cel-

ebredated in Edinburg (1958), Moscow (1966) and Nize (1970), in numerous “Annual Meetings of Spanish Mathematicians”, and he was one of the invited lecturers in the “Reunión de Matemáticos de Expresión Latina” held in Palma de Mallorca (Spain) in 1977.

### **The Scientific Work of E. Vidal Abascal**

The scientific interests of the Prof. Vidal were centered in three great areas: Astronomy, in particular in the calculation of orbits of double stars; Classical Differential Geometry (curves and surfaces) and Integral Geometry; and Differential Geometry of Manifolds, and in this particular context in Foliation Theory, Almost-Product Structures and Hermitian Geometries.

An objective proof of the interest and importance of his research and results is the fact that many of their articles were published in important world-wide distributed journals of recognized prestige; among them: *Astronomical Journal* (Yale, USA), *Journal of Differential Geometry* (Leigh Univ., USA), *Proceedings of the American Mathematical Society* (USA), *Bulletin of the American Mathematical Society* (USA), *Annals de l'Institut Fourier* (Grenoble, France), *Comptes Rendu de l'Académie des Sciences* (Paris, France), *Rendiconti dei Círcolo Matematico di Palermo* (Palermo, Italy), or *Tensor N.S.* (Japan)

He was a very prolific author, and in the list of his publications, probably incomplete, there are a total of 112 publications that can be grouped in the following form: 3 monographs and 13 articles on Astronomy; 1 book, 5 monographs and 43 articles on Differential and Integral Geometry, and 47 publications more: books on general Mathematics, discourses, books of essay, and articles of divulgation in prestigious magazines, like “Revista de Occidente” (Spain) for example.

Vidal was awarded with several prizes for his scientific work: by the “Consejo Superior de Investigaciones Científicas”, Madrid (Spain) in 1949; by the “Royal Academy of Exact, Physical and Natural Sciences of Spain” in 1953 and 1959; and by the Galician Government in 1989, by the whole of his scientific work. He also received the following medals: “Officier dans l'Ordre des Palmes Académiques”, granted by the French Government, in 1974, and the “Medalla Castelao”, granted by the Galician Government in 1986, as a recognition of a whole life dedicated to Galicia.

The interest of Vidal in his studies of Astronomy was mainly centered in the calculation of orbits of double stars, the subject of his Ph.D. thesis. When commenting his works on this subject, Prof. Baize, of the Astronomical Observatory of Paris (France), one of the maximum authorities of the

world on this topic at that time, wrote in 1980 the following:

“Prof. Vidal is first of all a mathematician, his works on Differential Geometry universally well-known and appreciated are an evidence of that. He has not observed personally double stars, but he has been interested in the problems that arise in the calculation of its orbits, calculation for which there exist numerous methods, of an unequal practical value, and that can be classified in two groups; graphical methods and analytical methods. The method imagined by Vidal belongs to the second group, but it solves the problem by completely new routes, giving an elegant proof and applying it to the star calculations . . . The whole of his research, as much on the non-elliptic orbits as on the elliptic ones, has been condensed by Vidal in a very important work, published in 1953, entitled “Calculation of Apparent Orbits of Double Stars”, book that constitutes without a doubt, as I already wrote in the moment of its appearance, the most remarkable contribution in our time to the study of the orbits of double stars. On the other hand, Vidal did not limit himself only to the theory, he was also interested in the practical application of his methods, inventing and making construct by the prestigious Swiss company Coradi his ingenious “Orbógrafo”, a device that allows to directly draw up on the paper the curve that represents the angles of position as a function of the distances, respecting rigorously the law of areas. This instrument is still used by numerous researchers, mainly in the Astronomical Observatory of the University of Santiago.”

The first works of Vidal on Differential Geometry go back to 1943-47. His studies on parallel curves on surfaces of constant curvature are specially outstanding, because they lead to a generalization of the classical formulas of Steiner for parallel connected curves in the plane; the methods used by Vidal in this study were used later by the C.B. Allendoerfer on the spheres. His works on these subjects, that belong to what at that time was known as Differential Geometry “in the large”, led him in a natural way to consider the study of some problems of Integral Geometry on surfaces. His numerous contributions in this area have not been out of phase with the passage of time, and it is not difficult to find references to them in recent articles dedicated, for example, to the study of the volume of geodesic tubes in Riemannian manifolds of arbitrary curvature.

The study of the integral invariants of geodesics led Vidal to consider its generalization and, in the last term, to the study of the measures in foliated manifolds, via by which Vidal introduces himself in a new subject of research, very novel at that time, subject of which he has been the pioneer in Spain. Once again, the results obtained by Vidal between 1964 and 1967 continue being mentioned in recent publications on the topic.

From 1966, the year in which the first doctoral thesis directed by him appears, Vidal stops being an isolated researcher and begins to form a compact team of researchers constituted by young people graduated in the Section of Mathematics of the Faculty of Sciences of the University of Santiago. The numerous subjects of thesis that Vidal proposes to his students extend his personal interests in research to other subjects, such as almost-product or almost-hermitian structures. Between 1966 and 1978 Vidal directed a total of fifteen doctoral theses and, to an age in which a certain diminution in his research activity would be logical, he published five articles on Differential Geometry, gave four communications in Congresses and wrote three monographs. In his articles of these last years there are again very remarkable contributions, such as the notion of almost foliated metric for almost-product structures, or the definition and characterization of two new families of almost-hermitian structures, whose scientific name universally accepted and adopted is the one of “geometries  $G_1$  and  $G_2$ ”, being the “ $G$ ” by the adjective “Gallegas” as it was indicated specifically in the note published in the “Comptes Rendus” of the Academy of Sciences of Paris in which they appeared in 1976.

### **The Creative Restlessness of E. Vidal Abascal**

When Vidal arrives at the university, first as student and years later as professor, mathematics in Spanish was totally out of phase and almost isolated with respect to the currents of study followed in the most important research centers of abroad. The first trips that he made abroad (to Switzerland in 1952 and 1953, and to the ICM in Edinburg in 1958) allowed him to state this reality, and he became aware of the urgent and inexcusable necessity of putting a remedy to this situation. Vidal did not content himself with speaking or writing about what was precise to do, like many of his contemporaries in Spain did, instead, he acted, and as a result of his actions Vidal became a pioneer in opening the mathematical research in Galician universities, or even more, it should be said, in the Spanish universities, to the international mathematical community, in particular to Europe.

Once his academic situation at the university became steady, and in spite of the difficulties and obstacles that existed in Spain at that time, Vidal manages the first visits of prestigious foreign mathematicians to Santiago de Compostela. Between 1960 and 1978 more than forty foreign professors visited Vidal’s department, coming from Brazil, Belgium, England, France, Germany, Israel, Portugal, Romania, Switzerland and the USA; here, they lectured graduate courses, gave conferences, or participated in

the International Colloquia organized by Vidal. Among those mathematicians one can find the names of some of the most prestigious geometers of those decades. A fact to be specially remarked is that Prof. René Deheuvels, from the University of Paris VII (France), was nominated as Visiting Professor of the University of Santiago to lecture, during two consecutive academic years, courses of doctorate with full academic validity, a singular case in the Spanish mathematics of that time.

Moreover, Vidal organized three International Colloquia on Differential Geometry, held at the University of Santiago in 1963, 1967 and 1972, the first of them being, in fact, the first international congress of mathematics celebrated in Spain. In 1978 a fourth International Colloquium specially dedicated to Vidal was held as a tribute in the occasion of his academic retirement. Later four new Colloquia, celebrated in 1984, 1988, 1994 and 2008, gave a continuity to the series initiated under the direction of Vidal.

With these two actions, the visits of foreign mathematicians, and the organization of international meetings, Vidal reached the first of his objectives: for his students to know some of the most actual lines of research on differential geometry of that time.

But Vidal had a second objective in mind: to get his students traveling abroad to improve his training as researchers. And he also accomplished this objective. Some of his students went, for long stays, to France (in Paris and Strasbourg), to England (in Durhan) and to the USA (in Harvard and Maryland).

The profits of these two actions for the Spanish mathematics were clear: between 1965 and 1978 Vidal directed 15 doctoral thesis, and one can find, even today, the traces of his work through the work of his students, and not only in the University of Santiago but also in the Universities of Sevilla, Granada, Valencia, Bilbao, or La Laguna (Canary Islands), for example.

Prof. Luis A. Santaló (University of Buenos Aires, Argentine), when commenting the set of the work of Vidal Abascal, wrote in 1980:

“It is fundamental to remark that the importance of his works is even, if not surpassed, by the fact of having created in Santiago de Compostela a School of Geometry from where some brilliant students have already went to another Spanish universities and there they are having an outstanding behavior. He knew the way to form a School. He knew how to create and to direct, for long years, a center with its own publications, a place for important national and international congresses and meetings, obliged visit for the most outstanding figures of the time, who came there to lecture courses and conferences with the certainty that their teachings will felt in a land that has been diligently

prepared by Vidal Abascal, who knew how to made of his Institute a warm and welcoming complement for the own beauties of Santiago. His work has been persistent and always directed with tenacity, intelligence and love. Students and colleagues know well of his extraordinary charming, the smoothness in his behavior, the nobility in his relationship, and his cleverness in the direction."

These efforts and initiatives of Vidal Abascal were not recognized at Spanish level, as it had been of justice. Nevertheless, the French Government compensated his efforts granting to him the medal of "Officier dans l'Ordre des Palmes Académiques" in 1974. This medal was, at that time, rarely granted outside France, and with it the exceptional personality of Prof. Vidal Abascal was recognized. Prof. Dehevels in the act of imposition of this medal said:

"... He knew how to stimulate in fifteen years the mathematical activity in the Spanish Universities... He got, in few years, to make Santiago well known in the scientific world, not only by the outstanding Colloquia that he organized but also by his own scientific works or by the works of his students... the concession by the French Government of this medal shows that his reputation has exceeded widely the frontiers."

### **Vidal Abascal essayist, painter, etc.**

As much in his speech of entrance as Member of the Royal Academy of Galicia ("The Crisis of the European University", A Coruña, 1971), like in his essay "Science and the Socialized University" (Ed. Dossat, Madrid 1972), or in his numerous journalistic collaborations, Vidal showed clearly his restlessness before the crisis by which the Spanish university was passing through, and in particular the crisis of the Galician university, that at that time was reduced to the University of Santiago. Through his writings his will of a liberal and progressive man is clear, deeply worried about a university unable to give a suitable answer to the social demands of that time.

Also in Vidal's writings the poverty of the resources destined to promote research, basic or applied, were an object of reflection as well as the necessity of making a suitable and long-term planning that allowed to obtain a greater profitability of the limited existing resources, or the deficiencies in the system of access to the university, or in the systems of training and promotion of its teaching staffs.

Vidal was also a painter. His taste for painting came from his youth, although he confessed that painting always had been for him only a "hobby". He made a first showing of his paintings in A Coruña, 1947; this was followed by others in Santiago de Compostela (1948, 1975 and 1978), Vigo (1950 and

1976), Pontevedra (1974, 1975 and 1980), Ourense (1977), Madrid (1979) and Barcelona (1983). Vidal also published a few articles about painting and was a critic of art; in 1972 he pronounced a conference in the Galician Center of Buenos Aires (Argentina) about “The Galician Painting School”, and in 1979 he published a book entitled “On the University and the Galician Painting” (Univ. of Santiago, 1979). Many of his pictorial works appear at the present in museums and particular collections.