longer refer to analyticity and that only involve real variable notions (measures) with geometric content (the radius $R(z,w,\zeta)$). We note, however, that it is, in principle, arguable whether the condition is geometric because it brings in the existence of a measure satisfying specific conditions. The real question is the following: is the above condition geometric in the precise sense that it is a bilipschitz invariant? Remember that a homeomorphism $\Phi$ of the plane is bilipschitz if it preserves distances modulo constants, i.e. if there exists a constant $C \geq 1$ such that:

$$C^{-1}|z-w| \leq |\Phi(z)-\Phi(w)| \leq C|z-w|, \ \ z,w \in \mathbb{C}.$$

Strong evidence was presented in [GV] that this had to be true and in [To2] the invariance of the removable sets in bilipschitz geometry was confirmed, in another excellent article. The Painlevé problem can therefore be considered solved and Mathematics has lost an open problem but gained a first-rate mathematician.

$$C^{-1}|z-w| \leq |\Phi(z)-\Phi(w)| \leq C|z-w|, \quad z,w \in \mathbb{C}.$$

## References


[GV] J. Garnett and J. Verdera, *Analytic capacity, bilipschitz maps and Cantor sets.* Math. Res. Lett. **10** (2003), vol. 4, 515–522.

[MTV] J. Mateu, X. Tolsa and J. Verdera, *The planar Cantor sets of zero analytic capacity and the local $T(b)$ theorem*, J. Amer. Math. Soc. **16** (2003), vol. 1, 19–28.

[To1] X. Tolsa, *Painleve's problem and the semiadditivity of analytic capacity,* Acta Math. **190** (2003), 105–149.

[To2] X. Tolsa, *Bilipschitz maps, analytic capacity and the Cauchy integral,* Ann. of Math. **162** (2005), 1243–1304.



Joan Verdera
UAB


## Miguel de Guzmán, in memoriam

Miguel de Guzmán died suddenly in Madrid on April 14, 2004. Having had the privilege to have been his friend, I would like to share with the members of the Catalan Mathematical Society the memory of one who was undeniably a key figure in Spanish Mathematics and a good friend to Catalan mathematicians.

Miguel de Guzmán Ozámiz was born in Cartagena in 1936. He studied philosophy in Germany and Mathematics in Madrid and earned his doctorate in Chicago under the direction of Professor Calderón. He was Professor of Mathematical Analysis at the Complutense University of Madrid, a member of the Royal Academy of Sciences, Chairman of the International Commission for Mathematical Education (1991-1998) and a visiting lecturer in many countries. But apart from the details of his curriculum vitae, I would like to talk about him as a person. He was a friendly man with deep ethical convictions and a special love of his family and friends and was able to carry out intensive research into analysis and geometry while maintaining a tremendous vocation for education and the popularisation and promotion of everything surrounding the world of Mathematics. He was an extraordinarily well educated and highly trained man who devoted himself body and soul to transmitting his passion for Mathematics to the world. His goal was the future and he wanted to reserve in it a place of honour for his beloved discipline: new research subjects, the new generations that had to be trained, the social perspective that had to be improved, the progress of people, etc. He has left us trained people, articles, books and, above all, many memories with which to continue to promote his ideas.

His intense life as a lecturer, populariser and promoter of new initiatives has laid down milestones that today, in his eternal absence, serve as beacons.

He visited Catalonia many times to speak at congresses and conferences, as the author of books, as a member of doctoral thesis juries, etc.

Here he would find Albert Dou whom he so admired, some of his disciples, many lecturers with whom he collaborated and many friends and followers. His last visits were for the tribute in Girona to our own Lluís A. Santaló and for the inauguration at IEC headquarters of the programme for promoting mathematical talent —a programme he had led successfully in Madrid and which is now taking off in Catalonia.

Heaven has a new light. It is a star-shaped polyhedron and anyone looking at it will discover things there. It is him.

Thank you, Miguel Guzmán, for your example. We will never forget you.

Claudi Alsina i Català
UPC

# Problem Section

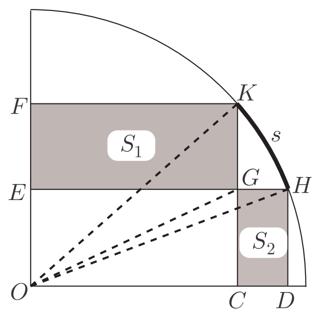
From the first issues of *SCM/Notícies*, one of the most popular sections of our Newsletter has been the Problem Section, where our readers can find and post mathematical questions and problems being either curious or interesting (or both). And, of course, they can also propose solutions to the problems announced in previous issues. For each issue, the editorial board chooses and publishes the nicest problems and the best solutions. As a sample, we reproduce three of the problems that appeared in this section.

## Selection of posted problems with the corresponding solutions:

**A52 *SCM/Notícies* 16, December 2001.** (59th Annual William Lowell Putnam Mathematical Competition)

Let $s$ be an arbitrary arc of the unit circle, situated at the first quadrant. Let $A$ be the area of the trapezoidal region defined between the arc and the "$x$" axis, and let $B$ be the area of the trapezoidal region defined between the arc and the "$y$" axis. Show that $A + B$ only depends on the length of the arc $s$ and not on its position.

**Solution:** (Redaction)




Let $S_1$ be the area of the rectangle $EGKF$, and $S_2$ be the area of the rectangle $CDHG$. It is clear that $S_1 = 2 \cdot \text{Area}\,(\triangle OGK)$ because the triangle and the rectangle have the same basis and height. By the same reason, $S_2 = 2 \cdot \text{Area}\,(\triangle OGH)$. Hence,

$$\begin{aligned} A + B &= S_1 + S_2 + 2 \cdot \text{Area}\,(GHK) = \\ &= 2 \cdot (\text{Area}\,(\triangle OGK) \\ &\quad + \text{Area}\,(\triangle OGH) + \text{Area}\,(GHK)) = \\ &= 2 \cdot (\text{Area Sector}\,(OHK)) = \\ &= \text{Length of arc}\,(s). \end{aligned}$$

**A59 *SCM/Notícies* 18, January 2003.** (A german suggestion for an International Mathematical Olympiad)

Let $a$, $b$ and $m$ be integral numbers such that

$$\frac{a^2 + b^2}{ab + 1} = m \geq 0.$$

Show that, $m$ is a square.

**Solution:** (Solution by Carles Romero, IES "Manuel Blancafort", La Garriga)

*i)* If one of the numbers is zero, the proposition is trivial.