In Search of Solitons in Amsterdam

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I was spending the Spring Break at a conference on "Higher Structures" at MPIM Bonn. On the way there I stopped by in Amsterdam for a refreshing stroll along the canals in the crisp spring air. That was worth it, as I came across an amazing treat, see the pictures. It is the offices of Korteweg[*1] and de Vries,[*1] moreover, not in a random place but in Vincentiushuis**!** Note, that my home Department of Mathematics at the University of Minnesota is located in Vincent Hall. Inspired, I started looking for the names of Kadomtsev[*2] and Petviashvili[*2] written on nearby buildings, but could not find them. I guess, I should wait till I visit Moscow or Tbilisi.

[*1] In 1895, D.J. Korteweg and G. de Vries derived a non-linear partial differential equation which describes weakly non-linear shallow water waves. It is called the Korteveg-de-Vries equation, or KdV equation, and is well-known among Kavli IPMU mathematicians and theoretical physicists. Solutions of the KdV equation tend to decompose at large times into a collection of solitary waves, called solitons.

[*2] In 1970, physicists B.B. Kadomtsev and V.I. Petviashvili derived the Kadomtsev-Petviashvili equation, or KP equation, which is a natural extension of the 1-dimensional KdV equation. As the KP equation is the simplest equation obtained from a certain system of infinitely many non-linear partial differential equations, this system is called the Kadomtsev-Petviashvili hierarchy, or KP hierarchy. In 1981, the fundamental structure of the KP hierarchy was described by the Japanese mathematician Mikio Sato in terms of an infinite dimensional Grassmann variety, called the Sato Grassmannian. "Kadomtsev" is a surname which one may find in Russia, and "Petviashvili" is a surname typical for Georgia.