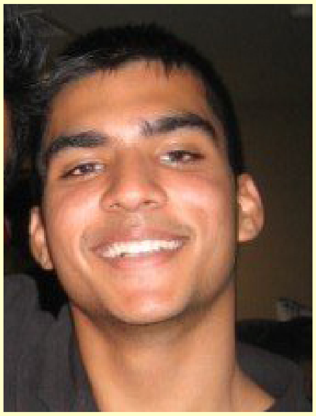


Atul Vyas was an outstanding CMC student who was majoring in Mathematics and Physics. He tragically lost his life in a train crash that occurred on September 12, 2008 in Chatsworth, California.

The Mathematics Department at CMC fondly remembers Atul as someone who was equally excited by the power of mathematical abstraction and the possibilities for its applications. In memory of Atul, the CMC mathematics department will host a yearly lecture series, aimed at a general audience, on the Creative Application of Abstract Mathematical Ideas. Our sixth lecture in the series will be given by Matthias Beck of San Francisco State University.

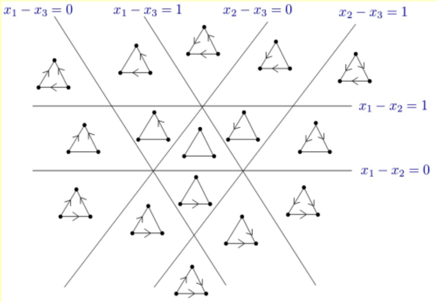
The Mathematics Department at Claremont McKenna College

invites you to attend the sixth

Atul Vyas Memorial Lecture in Mathematics

Tuesday, Dec. 3rd, 2013
4:30 pm – 6 pm
Davidson Lecture Hall, CMC

Speaker:
Matthias Beck of SFSU



Parking Functions & Friends

Imagine a one-way cul-de-sac with four parking spots. Initially they are all free, but there are four cars approaching the street, and they would all like to park. To make life interesting, every car has a parking preference, and we record the preferences in a sequence of four numbers; e.g., the sequence (2, 1, 1, 3) means that the first car would like to park at spot number 2, the second and third drivers prefer parking spot number 1, and the last car would like to part at slot number 3. The street is very narrow, so there is no way to back up. Now each car enters the street and approaches its preferred parking spot; if it is free, it parks there, and if not, it moves down the street to the first available spot. We call a sequence a parking function if all cars end up finding a parking spot. For example, our sequence (2, 1, 1, 3) is a parking function, whereas (1, 3, 3, 4) is not.

Naturally, we could ask about parking functions for any number of parking spots; we call this number the length of the parking function. A moment's thought reveals that there is one parking function of length 1, three parking functions of length 2, and sixteen parking functions of length 3. A beautiful theorem due to Konheim and Weiss says that there is a pattern to be found here: there are precisely (n+1)^{n-1} parking functions of length n. We will hint at a proof of this theorem and illustrate how it allows us to connect parking functions to seemingly unrelated objects, which happen to exhibit the same counting pattern: a certain set of hyperplanes in n-dimensional space first studied by Shi, and a certain family of mixed graphs, which we introduced in recent joint work with Ana Berrizbeitia, Michael Dairyko, Claudia Rodriguez, Amanda Ruiz, and Schuyler Veeneman.

A brief reception will take place prior to the talk at 4:00 pm and refreshments will be provided.

For more information, please contact the Chair of the Mathematics Department,
Lenny Fukshansky at (909) 607- 0014, lenny@cmc.edu or Asuman Aksoy at (909) 607-2769 aaksoy@cmc.edu