CU MATH CLUB PRESENTS

Numbers, algebra Mumbers, algebra and geometry: a and geometry: a bath in the garden.

PROFESSOR DMITRY KALEDIN

ONE SMART PERSON COMPARED MATHEMATICS TO A BEAUTIFUL GARDEN COMPLETELY OVERGROWN WITH WEEDS: IT IS EASY ENOUGH TO ENTER, BUT THE PATHS TWIST AND FORK, AND YOU NEVER KNOW WHERE YOU WILL END UP. USUALLY NOWHERE (OR BACK WHERE YOU STARTED). OCCASIONALLY, IF YOU'RE BOTH LUCKY AND PATIENT, YOU FIND A HIDDEN GEM OR A MAGNIFICENT VIEW. AN EXTREME EXAMPLE OF THIS IS FERMAT LAST THEOREM, WHERE A SIMPLE AND ALMOST MEANINGLESS QUESTION EVENTUALLY, AFTER 300 YEARS, LED US TO ALL THE WONDERS OF 20TH CENTURY ALGEBRA, GEOMETRY AND NUMBER THEORY. I AM GOING TO TAKE A MUCH SHORTER JOURNEY, AND THE STARTING POINT IS THE FOLLOWING THEOREM: EVERY POSITIVE INTEGER CAN BE EXPRESSED AS THE SUM OF AT MOST FOUR COMPLETE SQUARES. THE STATEMENT ITSELF IS VERY SIMPLE AND ALMOST USELESS. THE REASON WHY IT IS TRUE IS MUCH MORE INTERESTING, AND INVOLVES, AMONG OTHER THINGS, ALGEBRAIC THEORY OF DIVISION ALGEBRAS OVER FINITE FIELDS AND GEOMETRY OF LATTICES IN EUCLIDEAN VECTOR SPACES. AND WHILE OUR TIME IS LIMITED AND OUR JOURNEY HAS TO END AT THIS POINT, I HOPE TO ABLE TO SHOW TO YOU THAT MUCH MORE THINGS ARE JUST AROUND THE CORNER!

WEDNESDAYS, OCT 10 AND 17, 2018 MATH 350 5-6 PM