

The SUMO Speaker Series for Undergraduates

(food from Pizza Chicago)
Wednesday, February 24
4:40-5:30, room 380C

Every integer > 1 is a sum of at most a million primes

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Abstract: The famous Goldbach conjecture states that every even positive integer is a sum of two primes, and as a consequence every integer > 1 is a sum of at most three primes. Faced with the lack of any definite result, back in the 30's it was a challenge to even prove the existence of a constant $C > 0$ such that any integer > 1 is a sum of at most C primes. The challenge was taken up by a young Russian mathematician, Schnirelman, who succeeded in establishing the existence of $C > 0$. In this talk I will describe Schnirelman's proof, and obtain an explicit estimate for $C > 0$.

	2	3	4	5	6	7	8	9	10	Prime numbers
11	12	13	14	15	16	17	18	19	20	2 3 5 7
21	22	23	24	25	26	27	28	29	30	11 13 17 19
31	32	33	34	35	36	37	38	39	40	23 29 31 37
41	42	43	44	45	46	47	48	49	50	41 43 47 53
51	52	53	54	55	56	57	58	59	60	59 61 67 71
61	62	63	64	65	66	67	68	69	70	73 79 83 89
71	72	73	74	75	76	77	78	79	80	97 101 103 107
81	82	83	84	85	86	87	88	89	90	109 113
91	92	93	94	95	96	97	98	99	100	
101	102	103	104	105	106	107	108	109	110	
111	112	113	114	115	116	117	118	119	120	

There are almost no prerequisites. In the words of the famous analytic number theorist Landau: "[this proof] contains some of the most significant achievements in the number theory that I was privileged to witness in my lifetime [...] It could have appeared one hundred years ago and can be understood by a reader without the knowledge of the differential and integral calculus, not to mention the theory of complex variables".

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