

SOME PROBLEMS FOR THIS CENTURY

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In 1998 Steve Smale published a list of 18 problems for the next century. Four of them arose in our joint work, one with Lenore Blum. I will speak about progress (or lack of it) on some of these problems. In particular, Problem 17 on finding roots of polynomial equations will be included with some recent results about the eigenvalue, eigenvector problem. These problems involve finding well conditioned polynomial systems with respect to roots or matrices with respect to eigenvalues, eigenvectors. For one homogeneous polynomial in two variables the problem is related to Problem 7 on the distribution of points on the 2-sphere.

Time permitting, I will speak about some ideas related to Problem 4 on integer zeros of a polynomial.