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Other: **eKOMPASS(KIPO internal)**

(54) Title of the Invention: **Generating and partitioning polynomials**
Abstract Title: **Generating and partitioning polynomials**

(57) A non-transitory storage device containing software than, when executed by a processor, causes the processor to generate a projection set of polynomials based on a projection of a space linear combination of candidate polynomials of degree d on polynomials of degree less than d that do not evaluate to less than a threshold on a set of points. The software also causes the processor to compute the singular value decomposition of a matrix containing the difference between candidate polynomials evaluated on the points and the projection set of polynomials evaluated on the points, and to partition the polynomials resulting from the singular value decomposition based on a threshold.

FIG. 4

INITIALIZE DIMENSION (d) TO 1 AND CANDIDATE POLYNOMIALS — 202

GENERATE A PROJECTION SET OF POLYNOMIALS BY COMPUTING A PROJECTION OF A SPACE LINEAR COMBINATION OF THE CANDIDATE POLYNOMIALS OF DEGREE d ON POLYNOMIALS OF DEGREE LESS THAN d THAT DO NOT EVALUATE TO LESS THAN A THRESHOLD ON THE SET OF POINTS — 204

SUBTRACT THE PROJECTION SET OF POLYNOMIALS ON THE POINTS FROM THE CANDIDATE POLYNOMIALS EVALUATED ON THE POINTS TO GENERATE A SUBTRACTION MATRIX OF EVALUATED POLYNOMIALS — 206

COMPUTE THE SINGULAR VALUE DECOMPOSITION OF THE SUBTRACTION MATRIX — 208

PARTITION THE POLYNOMIALS RESULTING FROM THE SVD BASED ON A THRESHOLD — 210

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This international application has entered the national phase early.