Computing the *Eigenfactor* ™ Metrics

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Below is the complete source code for the *Eigenfactor* (TM) Algorthm used to compute the *Eigenfactor* (TM) Metrics, using Wolfram Research's *Mathematica* programming language.

The three import files are the cross-citation matrix in .mtx sparse matric format, a list of article counts for each journal, and a list of journal names.

```
rawData = Import["Zmatrix2007E.mtx", "MTX" ]
articleCount = Import["Article5yr_2007.csv", "CSV"];
journalList = Import["ISIuniqueJrns2007.csv", "CSV"];

zeroDiagonal = rawData - DiagonalMatrix[Diagonal[rawData]];
columnSums = Normal[Apply[Plus, zeroDiagonal]];
danglingNodes = Position[columnSums, 0];
d = ReplacePart[Table[0, {Length[columnSums]}],
   danglingNodes → 1];
cs = ReplacePart[columnSums, danglingNodes → 1];
h = Table[zeroDiagonal[[i, j]] / cs[[j]], {i, 1, Length[cs]},
   {j, 1, Length[zeroDiagonal[[1]]]}];
a = articleCount / Apply[Plus, articleCount][[1]];
update[pi_] := .85 h.pi + (.85 (d.pi)[[1]] + .15) a
iter[pi_, k_] := Nest[update, pi, k]
piStar = iter[Table[{1 / Length[articleCount]},
   {Length[articleCount]}], 30]
ef = Module[{prod},
  prod = h.piStar; 100 * prod / Apply[Plus, Flatten[prod]]]
ai = 0.01 * ef / a
resultsTable = Transpose[{Flatten[journalList], Flatten[ef],
   Flatten[ai], Flatten[articleCount]}]

Export["MathematicaEFScores_compressed_2007.csv",
 resultsTable]
```