

Eigenvalues and eigenvectors

- [Eigenvalues and eigenvectors](#)
- Important matrix properties
 - Hermitian, orthogonality,...
- [Eigenvalue algorithm](#)
 - [Power iteration](#), a simple numerical algorithm producing a number λ , the greatest (in absolute value) eigenvalue of a matrix A , and the corresponding eigenvector v , such that $Av = \lambda v$.
 - LR algorithm, developed by Heinz Rutishauser (1958 ?)
 - [QR algorithm](#)

Applications

- collisional relaxation
- population dynamics, evolution (stationary [population pyramid](#))
- normal modes analysis (molecular vibrations)
- PCA (principal component analysis)
- Schrödinger equation in quantum mechanics, molecular orbitals (Hartree-Fock theory)

Python libraries

References

From:

<https://dvillers.umons.ac.be/wiki/> - Didier Villers, UMONS - wiki

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