Hommage à Racine

Anne Canteaut

Inria, Paris, France

French Symmetric Encryption 2019, Paris

Jean Racine (1639-1699)

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Pour qui sont ces SERPENT*s qui sifflent sur vos têtes ?*

In *Andromaque*

Jean Racine (1639-1699)

Pour qui sont ces RIJNDAEL *qui sifflent sur vos têtes ?*

In *Andromaque*

Jean Racine (1639-1699)

Pour qui sont ces XOODOO *qui sifflent sur vos têtes ?*

In *Andromaque*

A Tribute to Roots

Anne Canteaut

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Fast Software Encryption 2019, Paris

Tragic Destiny of Roots

The importance of roots is underestimated...

- *The choice of the primitive root* $\boldsymbol{\alpha} \in \mathbb{F}_{\mathbf{2}^{n}}$ *does not matter*
- We often use irreducible polynomials...

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Recent trend: exhaustive search in $\sqrt{N}$

Primitive roots

$$\boldsymbol{\alpha} \in \mathbb{F}_{2^n}$$

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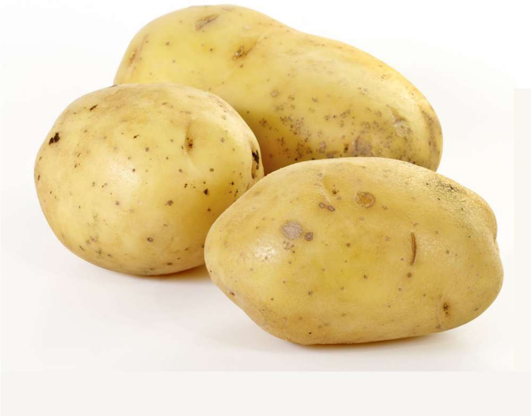
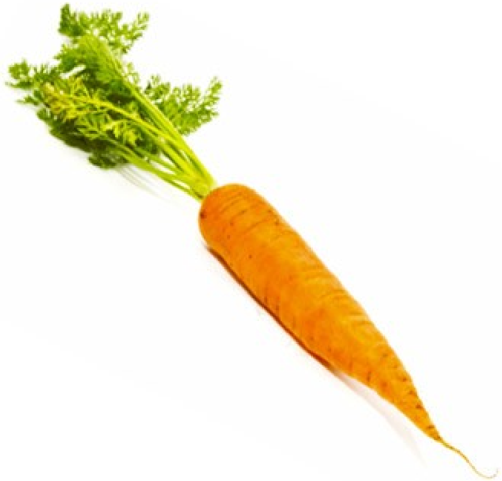


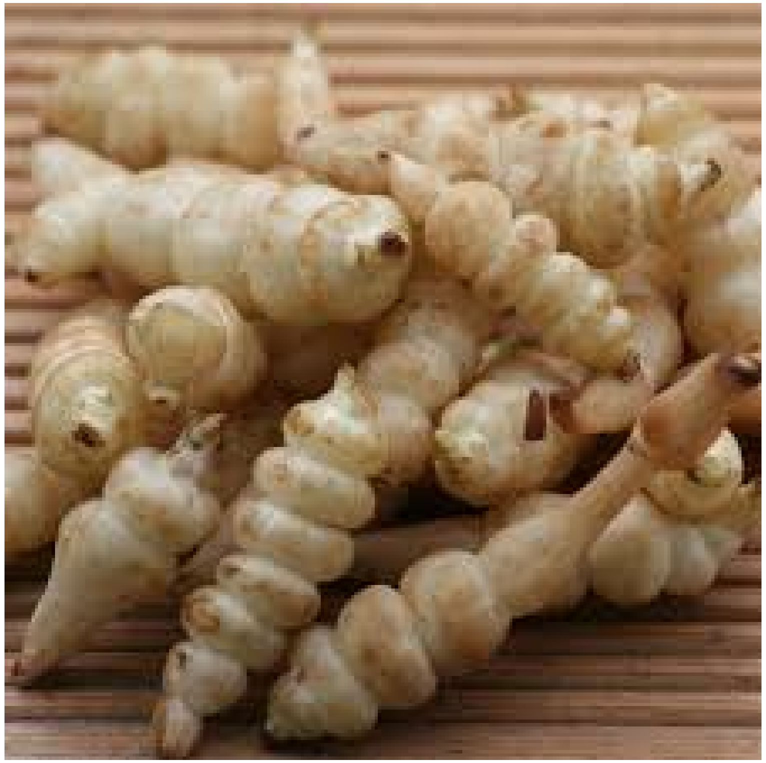


More complex roots

$$\exp\left(\frac{2\pi i}{n}\right)$$

Very complex roots

Chinese artichokes



Many thanks to Jérémy JEAN

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Many thanks to Florian MENDEL and Yu SASAKI

Remaining open problem

To beet or not to beet: that is the question.