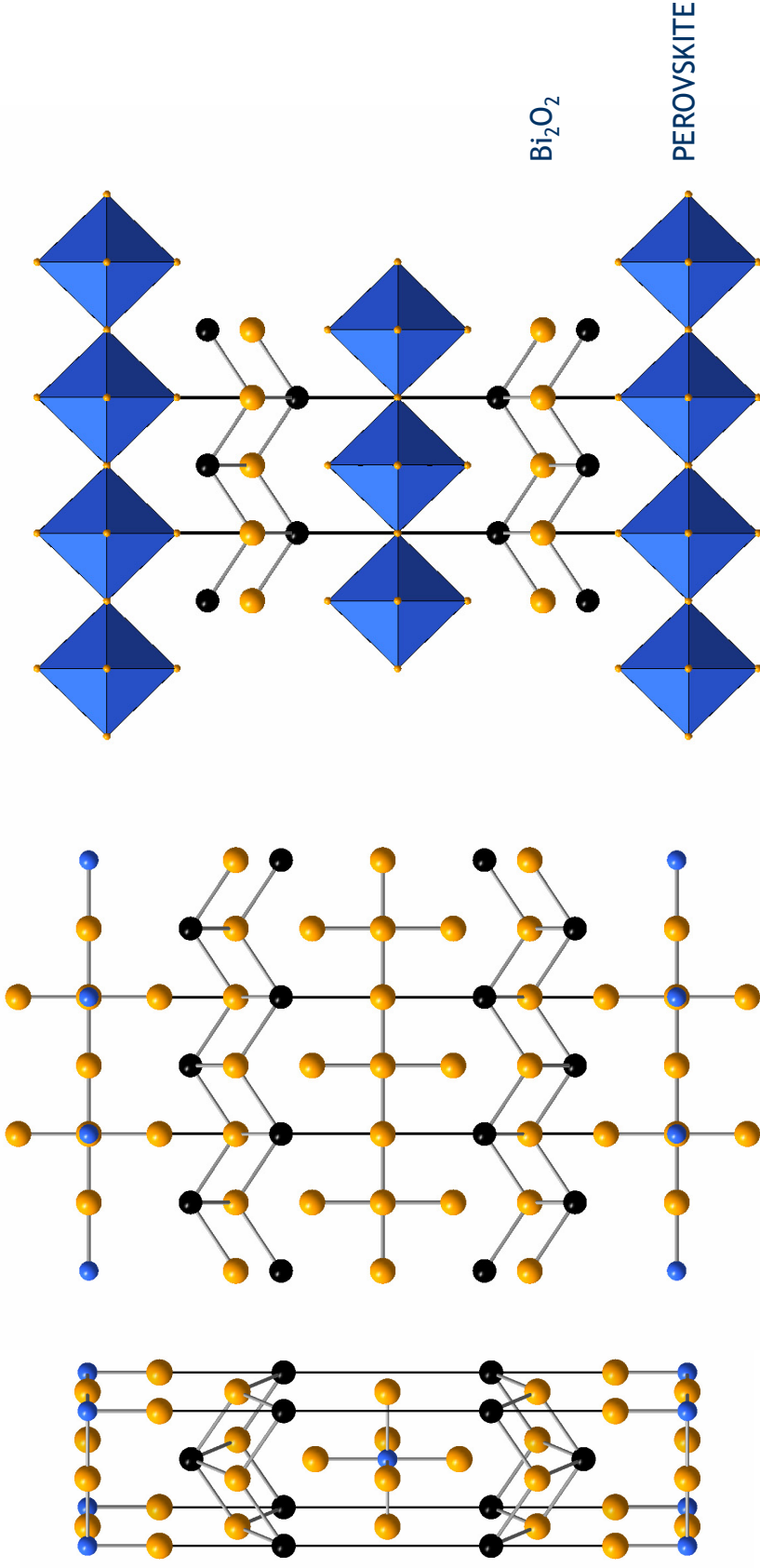


## Class 6: Aurivillius and Dion-Jacobson Phases



Views of the Aurivillius phase  $\text{Bi}_2\text{TiO}_4\text{F}_2$   
From: B. Aurivillius, Ark. Kemi 4 (1952) 39.

## Class 6: Aurivillius and Dion-Jacobson Phases

$a = 3.802(1)$   $c = 16.33(2)$  Å;  $I4/mmm$

Bi 0 0 0.327(6)

Ti 0 0 0

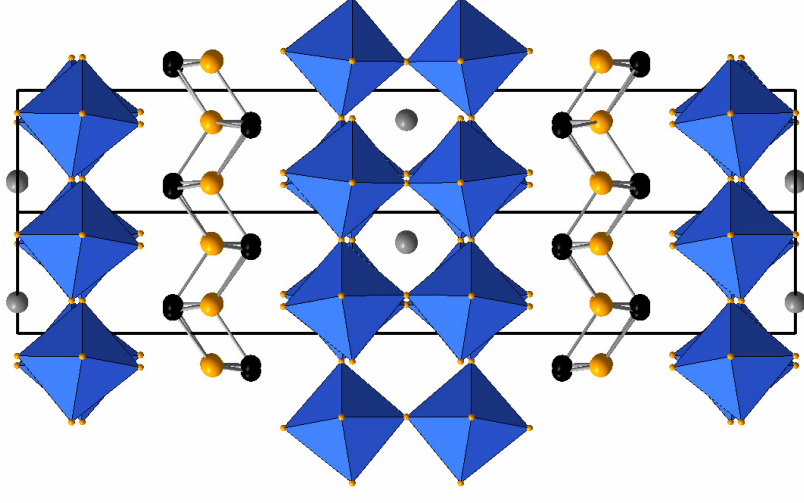
O/F 0 0.5 0

O/F 0 0 0.12(1)

O/F 0.5 0.25 0

The Aurivillius phase  $\text{Bi}_2\text{TiO}_4\text{F}_2$

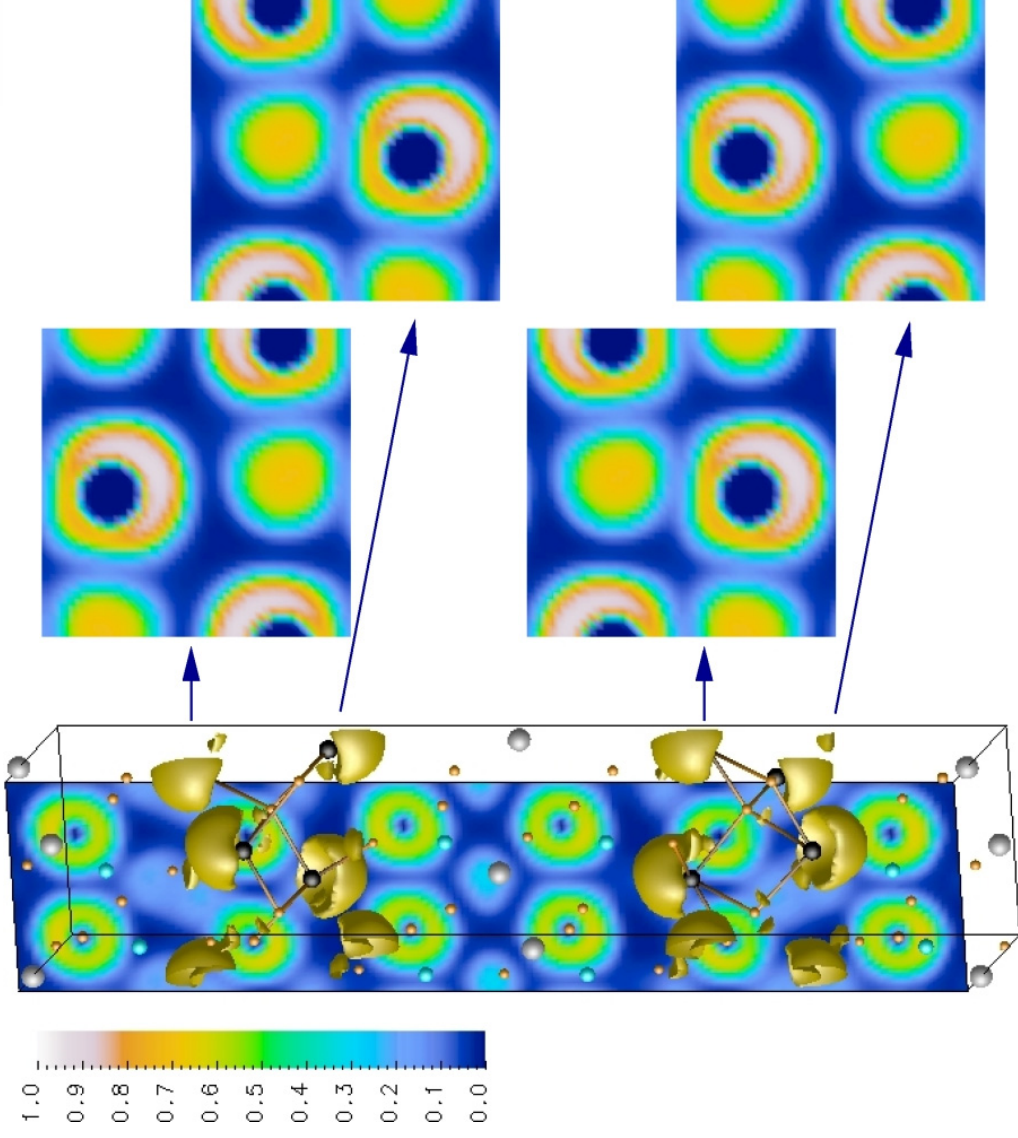
From: B. Aurivillius, Ark. Kemi 4 (1952) 39.



The great advantage is that thin films are fatigue free: Paz de Araujo et al. Nature, 374 (1995) 627. [DOI Link](#)

$\text{SrBi}_2\text{Ta}_2\text{O}_9$ : The next member  
The structure is ferroelectric

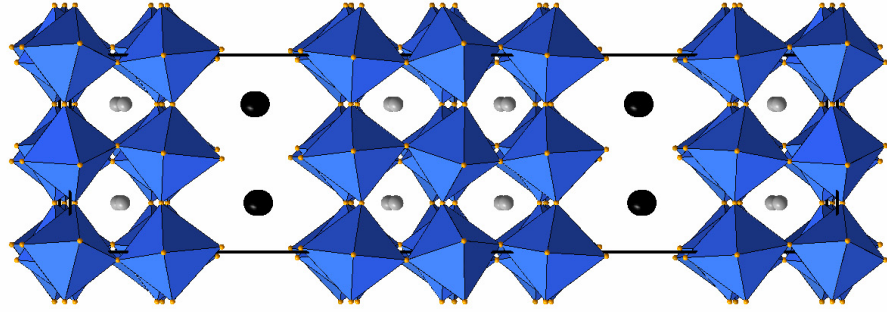
## Class 6: Aurivillius and Dion-Jacobson Phases



Lone pairs in SBT: The polarization is in plane.

## Class 6: Aurivillius and Dion-Jacobson Phases

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The Dion-Jacobson phases:

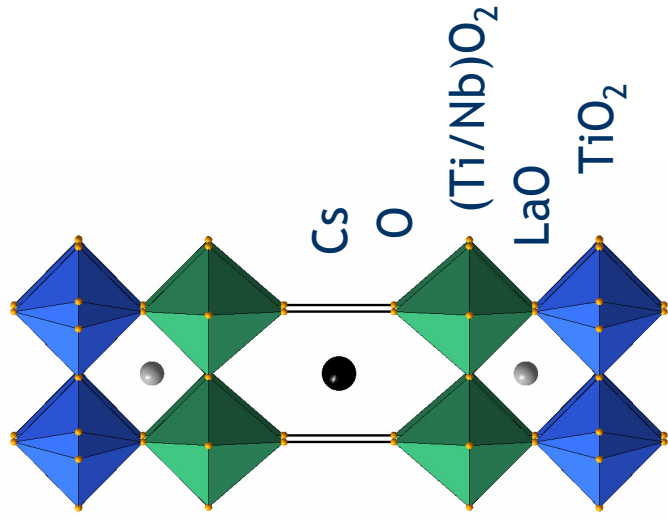
Dion, Ganne and Tournoux, *Mater. Res. Bull.* **16** (1981) 1429  
Jacobson, Johnson, and Lewandowski *Inorg. Chem.* **24** (1985) 3727.



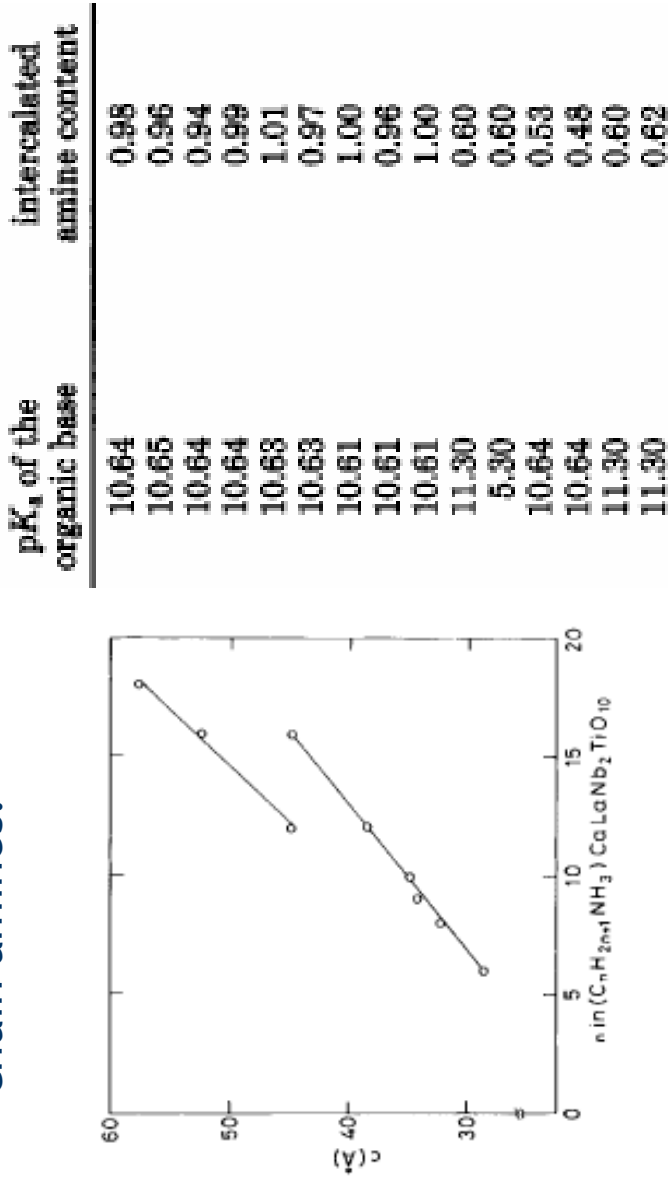
## Class 6: Aurivillius and Dion-Jacobson Phases



Gopalakrishnan, Uma, and Bhat, *Chem. Mater.* 5 (1993) 132.



The Cs<sup>+</sup> is replaced by H<sup>+</sup> and then exposed to long chain amines.



1970

*J. Phys. Chem.* **1993**, *97*, 1970–1973

### Visible Light Induced Photocatalytic Behavior of a Layered Perovskite Type Niobate, $\text{RbPb}_2\text{Nb}_3\text{O}_{10}$

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*Received: December 7, 1992*