Class 10: Other ferroelectrics

Views of the Aurivillius phase Bi$_2$TiO$_4$F$_2$
Class 10: Other ferroelectrics

\[ a = 3.802(1) \quad c = 16.33(2) \text{ Å}; I4/mmm \]

<table>
<thead>
<tr>
<th>Element</th>
<th>u</th>
<th>v</th>
<th>w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi</td>
<td>0</td>
<td>0</td>
<td>0.327(6)</td>
</tr>
<tr>
<td>Ti</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>O/F</td>
<td>0</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>O/F</td>
<td>0</td>
<td>0</td>
<td>0.12(1)</td>
</tr>
<tr>
<td>O/F</td>
<td>0.5</td>
<td>0.25</td>
<td>0</td>
</tr>
</tbody>
</table>

The Aurivillius phase Bi$_2$TiO$_4$F$_2$

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

\[ \text{SrBi}_2\text{Ta}_2\text{O}_9: \text{The next member} \]
\[ \text{The structure is ferroelectric} \]
Lone pairs in SBT: The polarization is in plane.

Bi$_3$Ti$_4$O$_{13}$ $\rightarrow$ Bi$_2$Bi$_2$Ti$_3$O$_{13}$
Class 10: Other ferroelectrics

The Dion-Jacobson phases:

\[ \text{CsCa}_2\text{Nb}_3\text{O}_{10} : n = 3 \text{ member} \]
Class 10: Other ferroelectrics

$\text{ACa}_{2-x}\text{La}_x\text{Nb}_{3-x}\text{Ti}_x\text{O}_{10}$ ($A = \text{K, Rb, Cs}$) and the solid acids $\text{HCA}_{2-x}\text{La}_x\text{Nb}_{3-x}\text{Ti}_x\text{O}_{10}$ ($0 < x \leq 2$)


The Cs$^+$ is replaced by H$^+$ and then exposed to long chain amines.
Class 10: Other ferroelectrics

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Visible Light Induced Photocatalytic Behavior of a Layered Perovskite Type Niobate, RbPb₂Nb₃O₁₀

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