Paarite \[\text{Cu}_{1.7}\text{Pb}_{1.7}\text{Bi}_{6.3}\text{S}_{12}\]

**Crystal Data:** Orthorhombic. \[\text{Point Group: } 2/im 2/m 2/m\] As elongate crystals to 0.2 mm.

**Physical Properties:**
- **Cleavage:** Perfect on \{0kl\}.
- **Fracture:** Uneven.
- **Tenacity:** Brittle.
- Hardness = 3.3-3.6
- \(\text{VHN} = 204\) (50 g load).
- \(\text{D(meas.)} = \text{n.d.}\)
- \(\text{D(calc.)} = 6.948\)

**Optical Properties:**
- **Color:** Light gray, white with a creamy tint in reflected light.
- **Streak:** Grayish black.
- **Luster:** Metallic.
- **Optical Class:** n.d.
- **Pleochroism:** Weak, white to creamy white.
- \(R_1-R_2: (470)\) 38.27-48.23, \((546)\) 37.34-48.56, \((589)\) 36.75-47.90, \((650)\) 36.00-46.53

**Cell Data:**
- **Space Group:** Pmcn
- \(a = 4.007(1)\)
- \(b = 55.998(8)\)
- \(c = 11.512(2)\)
- \(Z = 5\)

**X-ray Powder Pattern:** Calculated pattern.
- 3.630 (100), 2.836 (92.6), 3.136 (92.4), 3.551 (84.7), 3.155 (57.2), 4.01 (56.3), 3.585 (55.3)

**Chemistry:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu</td>
<td>4.90</td>
</tr>
<tr>
<td>Fe</td>
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<tr>
<td>Pb</td>
<td>16.45</td>
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<tr>
<td>Bi</td>
<td>60.74</td>
</tr>
<tr>
<td>S</td>
<td>17.84</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>99.95</td>
</tr>
</tbody>
</table>

(1) Felbertal scheelite deposit, Hohe Tauern, Salzburg province, Austria; average of 12 electron microprobe analyses; corresponds to \(\text{Cu}_{1.67}\text{Fe}_{0.01}\text{Pb}_{1.72}\text{Bi}_{6.30}\text{S}_{12.06}\).

**Occurrence:** In quartz veins cutting a metamorphosed (upper greenschist to lower amphibolite facies) scheelite deposit.

**Association:** Gladite-krupkaite, the gustavite-lillianite solid solution, pavonite, makovickyite, cosalite, cannizzarite, tetradymite, native Bi, chalcopyrite, pyrite.

**Distribution:** From the Felbertal scheelite deposit, Hohe Tauern, about 10 km south of Mittersill, Salzburg province, Austria.

**Name:** Honors Werner Hermann Paar (b. 1942), Professor of Mineralogy, University of Salzburg, for his contributions to ore mineralogy.

**Type Material:** Geological Museum, University of Copenhagen, Denmark and in the reference collection, Mineralogical Institute, University of Salzburg, Austria.

**References:**