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| Field point ： MyVec2 fieldPt = N[0]\*(m\_elem\_vertex[0]->getPos()) + N[1]\*(m\_elem\_vertex[1]->getPos());  高斯点的全局坐标 |
| Source point = Collect point = mesh vertex  奇异点是在极限过程中固定不变的点，也是从奇异点处“抠出”一个邻域  **源点是固定的，y， 场点是极限变量 x** |
| the source point **y** and integration point **x** |
| 视为计算公式 |
| The main point in the former section was to show that ultimately we have to deal only with bounded quantities. |
| Holder continuity是泰勒展开的前提 |
| 球形区域是必须的，只有对称区域，eq：15才能够在极限的情况下为0 |
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| 根据  上式中红色的部分H可以写成下式，忽略与积分无关的**d** |
| 根据极坐标转换      If we define **θ0** as the angle of the perpendicular line, then the angle to the field point can be computed as  在积分中使用的角度**θ 是***ρ到垂线角度 加上* **局部坐标横轴到垂线的距离（可能是负数）** |
| [83] M. Guiggiani, Formulation and numerical treatment of boundary integral equations with hypersingular kernels, in: Singular Integrals in Boundary Element Methods, 1998, pp. 85–124. |
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| 在 **Formulation and numerical treatment of boundary integral equations with hypersingular kernels** 中    将上式中的w替换成基础解  将奇异点（也称为源点，source point）周围“扣去”，使得上式可以施加“格林公式”  ，  **红色**是奇异点，源点，**绿色**是积分点 |
| The overall result is the following identity [10, 13]  [10] Guiggiani, M., Krishnasamy, G., Rudolphi, T.J. & Rizzo, F.J., A general algorithm for the numerical solution of hypersingular boundary integral equations, ASME J. of Applied Mechanics, 59, pp. 604–614, 1992.  [13] Guiggiani, M., Hypersingular formulation for boundary stress evaluation, Engineering Analysis with Boundary Elements, Special Issue on Integration Techniques, 55, pp. 169–179, 1994. |
| 同样替换U为W    Also note that the validity of identities (4) and (5) is not restricted to smooth boundary points (Figure 1). **The singular point y can be located at corners, vertices, etc**. |
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C Matrix

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| The Somigliana identity for domains with piecewise smooth boundaries (forming edges and vertices) was proved by Hartmann [8]. |
| In considering the same asymptotic behaviour of singular terms of the fundamental solutions in elastostatics and elastodynamics (e.g. [11], [1] §3.5), it is worth noting that these formulae are directly applicable to the timeharmonic elastodynamic problem, as well. |
| Finally, the analytical closed formula of the C-matrix for a non-smooth boundary point, with any number of tangent planes, is given. 网格环境描述 |
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