

<b>LC Muon Detector R&amp;D (Two Years \$K)</b>	Total	UC Davis	NIU	Notre Dame	Wayne St	Fermilab
<b>M&amp;S Costs</b>						
Software Development						
Use existing facilities						
Scintillator - Shared: universities/Fermilab						
a. Scintillator strips @ \$10/kg	10.0		5.0			10.0
b. WLS fiber - for eight short modules	12.0		3.0	4.0		5.0
c. Clear fiber	15.0			8.0		7.0
d. Light guide manifolds	20.0			6.0		14.0
e. AI for skins, tooling, handling fixtures	10.0					10.0
f. Raw materials for extrusion facility			XXX			
Electronics - 768 strips - 1536 chan. 12 PMs						
a. Multi-anode PMs or alternate (18 total)	24.0	8.0			8.0	8.0
b. Modifications to use existing electronics	10.0	4.0			4.0	2.0
<b>M&amp;S Costs (sub-totals)</b>	<b>101.0</b>	<b>12.0</b>	<b>8.0</b>	<b>18.0</b>	<b>12.0</b>	<b>56.0</b>
<b>Personnel Costs (Two years)</b>						
Software dev., testing, engr'ng						
Need several FTEs of software devel						
a. Travel to SLAC/Fermilab	21.0	3.0	6.0		2.0	10.0
b. Engineering costs	49.5	5.0		19.5	5.0	20.0
c. Graduate, undergrad., co-op, other	137.0	30.0	15.0	12.0	30.0	50.0
<b>Personnel cost (sub-totals)</b>	<b>207.5</b>	<b>38.0</b>	<b>21.0</b>	<b>31.5</b>	<b>37.0</b>	<b>80.0</b>
<b>Misc. Costs</b>						
a. Indirect costs	50.1	8.6	11.6	12.0	7.9	10.0
b. Travel to meetings						20.0
<b>Misc. cost (sub-totals)</b>	<b>50.1</b>	<b>8.6</b>	<b>11.6</b>	<b>12.0</b>	<b>7.9</b>	<b>30.0</b>
<b>Totals (Two years)</b>	<b>358.6</b>	<b>58.6</b>	<b>40.6</b>	<b>61.5</b>	<b>56.9</b>	<b>166.0</b>

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<b>M&amp;S Costs</b>								
Software Development								
Use existing facilities								
Scintillator - Shared: universities/Fermilab								
a. Scintillator strips @ \$10/kg	10.0		5.0			5* 10.0		
b. WLS fiber - for eight short modules	12.0		3.0	4.0		5.0		
c. Clear fiber	15.0			8.0		5* 7.0		
d. Light guide manifolds	20.0			6.0		14.0		
e. Al for skins, tooling, handling fixtures	10.0					5*10.0		
f. Raw materials for extrusion facility			XXX					
Electronics - 768 strips - 1536 chan. 12 PMs								
a. Multi-anode PMs or alternate (18 total)	24.0	9	8.0		8.0	3 8.0		
b. Modifications to use existing electronics	10.0		4.0		4.0	2.0		
<b>M&amp;S Costs (sub-totals)</b>	<b>101.0</b>	<b>9</b>	<b>12.0</b>	<b>8.0</b>	<b>18.0</b>	<b>12.0</b>	<b>18</b>	<b>56.0</b>
<b>Personnel Costs (Two years)</b>								
Software dev., testing, eng'ng								
Need several FTEs of software devel								
a. Travel to SLAC/Fermilab	21.0	3	3.0	6.0		2.0	10.0	
b. Engineering costs	49.5		5.0		19.5	5.0	3 20.0	
c. Graduate, undergrad., co-op, other	137.0	4	30.0	15.0	12.0	30.0	30 50.0	
<b>Personnel cost (sub-totals)</b>	<b>207.5</b>	<b>7</b>	<b>38.0</b>	<b>21.0</b>	<b>31.5</b>	<b>37.0</b>	<b>33</b>	<b>80.0</b>
<b>Misc. Costs</b>								
a. Indirect costs	50.1	1.8	8.6	11.6	12.0	7.9	10.0	
b. Travel to meetings							3.4 20.0	
<b>Misc. cost (sub-totals)</b>	<b>50.1</b>		<b>8.6</b>	<b>11.6</b>	<b>12.0</b>	<b>7.9</b>		<b>30.0</b>
<b>Totals (Two years)</b>	<b>358.6</b>	<b>17.9</b>	<b>58.6</b>	<b>40.6</b>	<b>61.5</b>	<b>56.9</b>	<b>54.4</b>	<b>166.0</b>