



### ***A Guide to Nanotechnology for Colorado's Workforce Development***

- **As a science, nanotechnology involves the manipulation of matter on an extremely small scale** (1 to 100 nanometers) to create structures, devices and systems with novel and unique properties and functions that become possible because of their small size. A nanometer is one billionth of a meter, about 75,000 times smaller than a human hair. At this scale, different laws of physics apply; material properties change and new material behaviors come into existence.
- **As an economic driver, nanotechnology is no 'small matter'.** Over the next 10 to 20 years, it is anticipated that nanotechnologies will change almost every product on the market today and create unique new products with features and benefits applicable to nearly every aspect of human endeavor. By 2014, nanotechnology will be incorporated into 15% of global manufacturing output totaling \$2.6 trillion. With market growth rates exceeding biotech and infotech, nanotech is forecasted to produce a \$1 trillion global market by 2015 and create 7 million U.S. jobs.
- **Nanotechnology is extremely important to Colorado's economic future.** It is a cross-cutting science with applications in many technology industries including aerospace, defense/homeland security, biomedicine, electronics information technology, and energy. At least 75 Colorado companies are already working in nanotechnology and 32.6% of survey respondents say it will be critical to company profitability within 10 years.
- **The "Colorado Nanotechnology Roadmap"** was released in September, 2006, by the Leeds School of Business at CU-Boulder. This comprehensive report provides the state's business, academic, research, economic development and government leaders with an action plan to ensure a strong future technology-based economy that maximizes the benefits of responsible development and deployment of nanotechnology.
- **Colorado Nanotechnology Alliance** is a not-for-profit corporation with a broad-based Board of Directors that will lead, coordinate and enable partner organizations to complete the action steps necessary to improve Colorado's competitive position in five target areas: leadership, business growth, research & technology transfer, workforce development and public education & societal change.
- **Colorado's competitive position:** Preparation for a 21<sup>st</sup> Century workforce will require *immediate* attention to our lagging state education system and to the special multidisciplinary knowledge base needed for technical nanotechnology positions. In order to prepare our own citizens to qualify for high wage technical jobs, the Roadmap calls for increased state support for K-12 science and math, teacher introduction to nanotechnology, student introduction to nanotechnology careers, community college programs for trained technicians, and university level courses in nanotechnology.
- **Colorado's workforce educators are important to our success.** Colorado must invest in improving our educational system from pre-K through higher education with a focus on math and science education; interdisciplinary course content; ethics in business and science; and technology career preparation. Educators have a responsibility to work collectively for positive systemic change that better prepares Colorado youth for high-wage technology jobs.

**This is no small task...get involved today.**