

Inequality or market demand?

A recent salary survey conducted by SPIE indicates that optics professionals working in North America are likely to earn significantly more than those elsewhere.

In April and May 2011, SPIE (the International Society for Optics and Photonics) conducted what is probably the largest and most comprehensive salary survey of the optics sector to date. Calling on its members from more than 170 countries around the globe to answer a series of questions by e-mail, the society collected more than 7,300 responses. The results, which are now live on the SPIE website (<http://spie.org/x51975.xml>), make for interesting reading.

One point that comes across clearly is the large divide between the salaries of those working in North America and those elsewhere. What is surprising is not so much the existence of this divide, but rather its magnitude. In North America, the median salary of almost 3,600 respondents (covering both industry and academia) is US\$102,400 — nearly 60% higher than that reported for their counterparts in Europe (US\$65,250) and 20% higher than in Asia. The only figure that comes close to this is the median salary in Oceania, which is around US\$97,200.

According to SPIE, there are several possible explanations as to why this geographical variance is so large, aside from differences in living costs. “For many years, the USA has gained advantage from the ‘brain drain’, and there are many European natives in leadership roles in optics in the USA. Although the salary gap between the USA and Western Europe has narrowed over time, there is still a migration of talent to the USA. Opportunity draws, whether it is the USA’s entrepreneur-friendly culture or its well-funded research enterprise, which is currently suffering from a lack of native talent,” commented Eugene Arthurs, the CEO of SPIE. “Europe, unlike some of the developing world, can move to balance this attraction, and I see seeds of this in Photonics21 [a recent initiative to create a technology platform and common strategy for optics in Europe]. The USA must address its low output of science and technology workers.”

Unsurprisingly, there is also a sizeable difference between median earnings in academia and industry, with non-academic employment in both North America and Europe commanding a premium of around 30% more. Globally, the highest median salaries (as ranked by employer type) are for



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company/corporation, defence and self-employed/consultant, which are all around US\$100,000. In contrast, the median salary at a university or research institute is around US\$53,000.

This difference is also apparent in the breakdown by job discipline, with the highest median salaries being for those working in jobs associated with commercial organizations such as aerospace engineering and research (US\$105,152) followed closely by sales (US\$100,000) and marketing (US\$99,502). In contrast, those working in physics and biomedical or environmental research typically earn at least 40% less.

Another factor that seems to strongly influence salary is the number of years an individual has been employed in the optics industry. Salaries rise by almost 50% from those with less than five years’ experience (US\$38,000) to those who have been employed for 5–10 years (US\$60,000) and 11–15 years (US\$88,400). The size of the organization is also relevant, with those working at large organizations (>5,000 employees) more likely to receive larger pay packets than those in small or medium-sized organizations.

One particularly pressing issue not openly discussed in the survey results is pay equality between men and women working in optics. SPIE says that initial research suggests men typically earn more than women, and it is now analysing a range of factors that could be the cause of this divide.

So what prompted SPIE to conduct this survey, and why now? “We were hearing more and more questions about salaries in the optics and photonics industry, particularly from employers and job seekers through the SPIE Career Center,” explained Arthurs. “Other than anecdotal information and a few recent surveys focused on segments or regions within the global community, there was no source for comprehensive, comparative and validated data.”

Arthurs says that SPIE is now planning to conduct the survey on a regular basis so that it can chart trends and distribute the results. “This year’s version has not only produced valuable data, but also demonstrated how the diversity of the photonics industry increases the challenges inherent in gathering such data,” he commented.

SPIE says that the results of the survey, despite being a valuable resource, do not perfectly describe the entire landscape of employment within optics. “This survey reflects the fact that SPIE reaches a constituency comprised primarily of individuals working in research and development. Future surveys will be more complete, with a stronger representation of the manufacturing workforce,” commented Arthurs. “We are committed to being the essential source for good data in all segments of the photonics industry and the research community, and future surveys will reflect that.” □